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2367. LANGERON (M.) & VANBREUSEGHEM (R.). **Précis de mycologie.** [A compendium of mycology.]—703 pp., 1 pl., 461 figs., Paris, Masson et Cie, 1952. Fr. 4,800, boards Fr. 5,400.

The third part of this second edition of Langeron's work deals with medical mycology and is an entirely new contribution by R. Vanbreuseghem. It replaces the original chapter nine and comprises 17 chapters covering the mycoses in alphabetical order of their common names. In this part the author has endeavoured to include everything essential, animal mycology being dealt with as fully as possible.

2368. BENEDEK (T.) **Critical survey of the mycological literature of the years 1939 to 1942.**—*Mycopathologia*, 5, 4, pp. 277–399, 1951.

This further contribution to the author's critical survey of the literature of medical mycology from 1939 to 1942 [No. 1813] comprises sections on bronchomoniliasis (*Monilia* [*Candida*] *albicans*), North American blastomycosis (*Blastomyces dermatitidis*), torulosis (*Torula histolytica*) [*Cryptococcus neoformans*], chromoblastomycosis (*Phialophora verrucosa* and *Hormodendrum* [*P.*] *pedrosoi*), coccidioidomycosis (*Coccidioides immitis*), paracoccidioidal granuloma (*Paracoccidioides brasiliensis*), histoplasmosis (*Histoplasma capsulatum*), rhinosporidiosis (*Rhinosporidium seeberi*), sporotrichosis (*Sporotrichum schencki*), maduromycosis caused by a number of different species, actinomycosis (*Actinomyces israeli* and *A. bovis*), experimental biology and immunology, *Aspergillus* spp., fungal infections in animals, and infections caused by various fungi. The list of references extends to ten pages.

2369. RICHTER (R.). **Der derzeitige Stand der medizinischen Mykologie.** [The present status of medical mycology.]—*Z. Haut- u. GeschlKrankh.*, 12, 2, pp. 75–84; 3, pp. 119–128; 4, 156–166, 1952.

This is a useful survey of recent important contributions to the literature on medical mycology, arranged under the headings of biology, diagnosis, clinical experience, and therapy and prophylaxis.

2370. NEGRONI (P.). **Clasificación de las micosis profundas.** [Classification of the deep mycoses.]—*Rev. argent. Dermatosif.*, 36, 1–2, pp. 21–25, 1952.

An explanatory key is presented for the determination of the deep mycoses, based on their symptomatology, pathogenicity, and etiology.

2371. BLANK (F.). **A quantitative method for the in vitro assay of fungistatic agents.**—*Canad. J. med. Sci.*, 30, 2, pp. 113–117, 1 pl., 1952.

A simple method for the *in vitro* assay of fungistatic agents is described. Twenty ml. of the culture medium (2 per cent. neopeptone 'difco' or peptone bactériologique 'uclaf', 4 per cent. maltose 'wander', 0·1 per cent. yeast extract 'difco', 10 per cent. bovine serum, and 2·5 per cent. agar in tap water) are poured into sterile Petri dishes. Sterile filter paper strips are dipped into

solutions of the test compounds, hung up to dry, and laid across the centre of the culture medium.

Strips dipped only in the solvent serve as controls. Thin cardboard strips are used for ointments, the medicated side being placed on the medium. The Petri dishes are incubated at 37° C. for about 16 hours and next day the dishes are inoculated. A loop is dipped into the inoculum and a streak drawn from the edge of the dish to the strip. The same is done on the opposite half at the same height. Four corresponding streaks 2 cm. apart can be drawn on each half, so that four different strains or species can be tested on one dish. The dishes are again incubated at 30°, and the size of the inhibition zones, measured (on the bottom on three consecutive days) by the distance of the two corresponding fungus streaks, gives the result of the assay.

2372. Edwards (R. W.) & Hartman (E.). **A simple technique for collecting fungus specimens from infected surfaces.**—*Lloydia*, 15, 1, p. 39, 1952.

In collecting fungal specimens from skin, if the fungus or its spores are superficial acetate film adhesive tape can be used, the area being previously scarified if necessary. A convenient length of tape 1 in. wide is cut off, held by the ends, and the centre pressed against the infected area. A glass plate 6 by 8 in. is used to prepare the tape, strips of which about 6 in. long are cut, applied to a clean plate, and disinfected with alcohol, a small piece of cardboard being inserted under each end to facilitate handling. For culturing, a portion of the tape with sample is cut off and dropped into Sabouraud's broth. Another portion is placed on a clean, flamed slide for transporting to the laboratory, where it is removed and placed adhesive side down on an agar plate. Another piece with sample is placed on a slide, and in the laboratory the film is peeled back for applying hydroxide or stain, the film acting as cover-slip. The acetate film resists the hydroxide and is suitable for oil-immersion examination.

2373. Fuentes (C. A.), Trespalacios (F.), Baquero (G. F.), & Aboulafia (R.). **Effect of actidione on mold contaminants and on human pathogens.**—*Mycologia*, 44, 2, pp. 170–175, 1952.

In studies at the University of Havana, Cuba, material from human lesions of suspected mycotic origin and strains of fungi maintained in the culture collection were planted on Sabouraud's dextrose agar and on the same with 0·1 mg. actidione per ml. added [Nos. 2256]. The results showed that pathogenic fungi were isolated from clinical lesions as readily on the actidione medium as on Sabouraud's agar, while cultures on the former were less often contaminated with saprophytic fungi than were those on the latter. Of 42 stock cultures of pathogenic fungi, all but six grew well on the actidione medium. Of 15 stock cultures of saprophytic fungi, eight made considerably less growth on the actidione medium than on Sabouraud's, while six did not grow at all on the former. The actidione medium induced no change in the gross or microscopic characters of the cultures.

2374. Gordon (M. A.). **Veterinary mycology and its public health significance.**—*Auburn Vet., 1951*, pp. 14–21, 24, 1951.

The author briefly summarizes the existing knowledge of the occurrence of animal mycoses, indicating those which may have a direct bearing on the transmission of human disease. The diseases covered comprise ringworm (*Trichophyton mentagrophytes*, *T. faviforme*, *Microsporum canis*, *M. gypseum*, and *M. audouini*), favus (*M. gypseum*, *T. gallinae*, *T. schoenleini*, and *T. quinckeanum*), sporotrichosis (*Sporotrichum schencki*), epizootic lymphangitis (*Histoplasma farciminosum*), rhinosporidiosis [*Rhinosporidium seeberi*], actinomycosis (*Actinomyces bovis* and *Nocardia farcinica*), brooder pneumonia (*Aspergillus*

fumigatus), thrush (*Candida albicans*), histoplasmosis (*Histoplasma capsulatum*), coccidioidomycosis (*Coccidioides immitis*), North American blastomycosis (*Blastomyces dermatitidis*), torulosis (*Cryptococcus neoformans*), mucormycosis (various organisms, including *Mucor*, *Rhizopus*, and *Absidia* spp.), and haplomycosis (*Haplosporangium parvum*). A list of 73 references is appended.

2375. Gordon (M. A.). **A key to the human mycoses.**—*J. Bact.*, 63, 3, pp. 385–392, 1 fig., 1952.

A key to the diagnostic characters of pathogenic fungi as observed in the human body is presented, designed to facilitate recognition of fungal structures in tissues and fluids and provide a clue to the specific identification of the causal organism in a given mycotic infection. The key is completely dichotomous. The characters that most clearly define each fungus or disease are given in italics, and in each case the name of the disease is preceded by that of the etiological agent or agents. References to works giving good illustrations of the fungi in tissue are appended.

2376. Hazen (Elizabeth L.). **A study of specimens for evidence of mycotic infection.**—*Rep. N.Y. St. Dep. Hlth, 1951*, pp. 70–73, 1951.

In studies conducted during 1951 at the New York State Department of Health, *Microsporum audouini*, *M. canis*, *Trichophyton mentagrophytes*, *T. rubrum*, *T. tonsurans*, and *T. faviforme* were isolated from scalp specimens, skin, or nail scrapings. *Candida albicans* was found in approximately 74 per cent. of all the yeast-like specimens isolated from sputa, body fluids, and oral and vaginal specimens. *Cryptococcus neoformans* was isolated from the cerebrospinal fluid of a male aged 43. *Nocardia asteroides* was recovered from a brain abscess. *Blastomyces dermatitidis* was isolated from purulent material from a mass over the right scapula and from a sputum specimen from the same patient. A culture isolated in a tuberculosis hospital proved to be *B. dermatitidis*, and the same fungus developed in cultures from a patient with an ischio-rectal swelling. *Aspergillus sydowi* and *A. fumigatus* were isolated from bone chips and the latter also from bone marrow. *Actinomyces bovis* [*A.* ? *israeli*] was obtained from the exudate of a hard swelling in the lower jaw of a 30-year-old male.

2377. Heseltine (W. W.). **Sodium propionate and its derivatives as bacteriostatics and fungistatics.**—*J. Pharm., Lond.*, 4, 8, pp. 577–581, 1952.

In the author's experiments at the Technical Division, Harker Stagg, Ltd., London, sodium propionate at concentrations of 0·1 to 0·5 per cent. inhibited the growth of *Candida albicans*, *Aspergillus niger*, *A. fumigatus*, and *Epidermophyton* [*Trichophyton*] *interdigitale*. Sodium α-bromo-propionate was fungistatic to *C. albicans* and *T. interdigitale* at 1 and 0·25 per cent., respectively, and sodium α-bromopropionamide and sodium α-hydroxy-β-phenyl propionate at 0·5 and 0·25 per cent., while sodium β-phenoxypropionate at 0·25 per cent. arrested the growth of *T. interdigitale* but permitted a trace of *C. albicans*.

2378. Loefer (J. B.), Bieberdorf (F. W.), & Weichlein (R. G.). **Inhibition and enhancement of the growth of fungi with streptomycin.**—*Bull. Torrey bot. Cl.*, 79, 3, pp. 242–250, 1 fig., 1952.

When 17 strains belonging to 16 species of pathogenic and non-pathogenic fungi were grown in two types of media, one with peptone and one without, containing concentrations of streptomycin covering the range of 0, 0·1, 1, 2·5, 5, and 10 mgm. per ml., eight strains showed inhibition or acceleration of growth in the presence of the antibiotic. The effects produced appeared to

vary with the type of medium, not with differences in pH value or in incubation temperature. Acceleration, when it occurred, was mostly greatest with 5 and 10 mgm. streptomycin, while inhibition was generally also directly proportionate to concentration. *Nocardia* sp. (isolated from a brain lesion and closely resembling *N. asteroides*) when grown with 2·5 to 10 mgm. per ml. streptomycin lost its normal orange colour.

2379. Nickerson (W. J.). **Physiological bases of morphogenesis in animal disease fungi.**—*Trans. N.Y. Acad. Sci.*, Ser. ii, 13, 4, pp. 140–145, 1 pl., 1951.

After discussing the regulating action of temperature on the interconversion of mycelial and yeast types of growth in *Blastomyces dermatitidis* and *B.* [*Paracoccidioides*] *brasiliensis* in relation to the development of an exogenous respiratory system in these organisms incubated at 37° C. [No. 1622], the author adduces evidence showing the importance of intracellular sulphydryl groups for maintaining the yeast form of *Candida albicans*. In a mutant 'rough' strain with an imbalance in the cell division-growth processes the addition of sulphydryl to culture media resulted in an almost completely yeast type of growth. The yeast cells were richer in alkaline phosphatase and much richer in cytochemically demonstrable sulphydryl groups than the mycelial-like cells, but the rate of respiration in the culture grown with added sulphydryl was almost the same as in the unsupplemented. Non-sporulating, compact clumps of mycelia of *Trichophyton mentagrophytes* and *T. rubrum* from liquid shake cultures were compared with normal sporulating growth. Alkaline phosphatase was demonstrated cytochemically to be abundantly present in the mycelia. The pentose- and ribose-nucleic acid contents of a 14-day submerged culture of *T. mentagrophytes* were 7·7 and 33·6 μgm. per mg. dry weight, respectively, and of two 14-day aerial cultures 6·5 and 28 and 6·8 and 29·2 μgm., respectively. Only traces of desoxypentose nucleic acid were detected.

2380. Salvin (S. B.). **Endotoxin in pathogenic fungi.**—*J. Immunol.*, 69, 1, pp. 89–99, 1 graph, 1952.

In experiments at the Rocky Mountain Laboratory, Hamilton, Montana, 21-day-old female Swiss mice were killed within 48 hours by intraperitoneal injections of suspensions of dead yeast cells of six isolates of *Candida albicans* [No. 2050], the lethal effect of which was enhanced by an adjuvant, e.g., of 1 to 2 mg. dried tubercle bacilli. A comparable action was exerted by isolates of *C. stellatoidea*, *C. tropicalis*, *C. pseudotropicalis*, *C. krusei*, *C. parakrusei*, and *C. guilliermondi*, and of nine other pathogenic fungi, viz., *Actinomyces bovis*, *Aspergillus fumigatus*, *Blastomyces dermatitidis*, *Coccidioides immitis*, *Cryptococcus neoformans*, *Histoplasma capsulatum*, *Microsporum gypseum*, *Rhizopus pygmaeus*, and *Sporotrichum schencki*. Soluble endotoxin was prepared from the yeast cells of *Candida albicans* and *B. dermatitidis*.

2381. Wooldridge (W. E.). **Antifungal antibiotics of clinical significance.**—*Sth. med. J.*, 45, 4, pp. 350–354, 1952.

Penicillin, actidione, and prodigiosin are selected as outstanding examples of the efficiency of antibiotics in the therapy of human mycoses. The paper, presented at the 45th annual meeting of the Southern Medical Association, held at Dallas, Texas, in November, 1951, was followed by a discussion.

2382. Basu (C. C.). **Human actinomycosis : a brief study of some species of Actinomyces obtained from human sources.**—*Indian med. Gaz.*, 87, 6, pp. 237–244, 2 col. pl., 10 figs., 1952.

A tabulated survey is given of the cultural and micromorphological characters of the species of *Actinomyces*, including *A. mucosus* [No. 259], isolated by

the author at the R. G. Kar Medical College, Calcutta, from ten cases of human actinomycosis during the period from 1936 to 1946.

2383. Banerjee (B. N.). **Actinomycosis of the skin.**—*Indian med. Gaz.*, 87, 6, pp. 253–255, 1952.

In 1950, among the 7,000 patients attending the Skin Department of the R. G. Kar Medical College Hospital, Calcutta, only one, a 60-year-old female, was suffering from actinomycosis [see preceding and next entries]. The *Actinomyces* was cultured with difficulty on Sabouraud's media from nodules at the back of the thorax and grew very slowly, producing a colony like a miniature snowball, 10 mm. in diameter, in the course of 15 days. The usual methods of treatment proved unavailing in the relief of the condition, which was already of eight years' duration.

2384. Konar (N. R.), Sen Gupta (A. N.), & de (S. N.). **A case of solitary renal actinomycosis treated with antibiotics.**—*Indian med. Gaz.*, 87, 6, pp. 251–253, 1 fig., 1 graph, 1952.

A case of solitary renal actinomycosis (*Actinomyces* [*?Nocardia*] sp.) in a 55-year-old male patient is reported from the Nilratan Sankar Medical College, Calcutta [see preceding entries]. The organism isolated from the urine was aerobic, Gram-positive, and non-acid-fast. Streptomycin produced a beneficial effect and a clinical cure was finally achieved by means of terramycin.

2385. Pinto Puentes (R. J.). **Consideraciones sobre diagnóstico, formas clínicas y tratamiento de la actinomicosis torácica.** [Considerations on the diagnosis, clinical forms, and treatment of thoracic actinomycosis.]—*Hoja tisiol.*, 12, 1, pp. 61–68, 1952. [English summary, p. 106.]

This is a discussion, illustrated by clinical notes on six cases from Uruguay, two of which were treated by the author, on the pathogenesis, diagnosis, and therapy of thoracic actinomycosis (*Actinomyces israeli*).

2386. Kaufman (N.) & Prieto (L. C.). **Cerebral nocardiosis. Report of a case with necropsy.**—*Arch. Path.*, 53, 4, pp. 379–384, 2 figs., 1952.

From the Cleveland (Ohio) City Hospital a case of nocardiosis (*Nocardia asteroides*) is reported in a 53-year-old Hungarian carpenter. The fungus was isolated on beef heart infusion agar plus 10 per cent. human blood, beef heart infusion broth plus 3 per cent. human blood, and Sabouraud's dextrose agar after 48 hours' incubation at 37° C. from abscesses in the brain, pancreas, and left bronchopulmonary lymph node. Although the fungus could not be demonstrated in the lungs, they are believed to have been the primary site of infection, the brain and pancreas having presumably been invaded by metastasis.

2387. Ley (E.), Peralta (P.), & Ley (E.). **Granuloma actimicótico cerebral.** [Actinomycotic cerebral granuloma.]—*Rev. clín. esp.*, 41, 4, pp. 234–241, 3 figs., 1951. [English, German, and French summaries.]

Following a survey of the literature on actinomycosis of the central nervous system (a rare form of the disease), the authors describe a case involving the third frontal gyrus of the brain in a 28-year-old male patient at the Hospital Central Cruz Roja, Madrid. A complete cure (the first to be recorded in cerebral actinomycosis) was effected by operation.

2388. Grant (R.). **Actinomycosis treated with aureomycin: report of case.**—*J. oral Surg.*, 4, pp. 334–337, 2 figs., 1951.

Particulars are given of the successful treatment with aureomycin of a case of mandibular actinomycosis (*Actinomyces bovis*) [*A. israeli*: No. 2075] in a

39-year-old patient at the Veterans Administration Hospital, Dearborn, Michigan.

2389. Miller (N. G.) & Drake (C. H.). **Experimental actinomycosis.**—*Mycopathologia*, 6, 1, pp. 28–37, 1951. [German summary.]

At the Department of Bacteriology and Public Health, Washington State College, Pullman, comparison of a strain of *Actinomyces bovis* [*A. israeli*] from a scraping of teeth from the normal human mouth with a known strain of the same species showed that colony characteristics were very similar and cultural requirements identical. Both were relatively non-pathogenic. Evidence obtained indicated that a high antibody content in the blood stream of experimental animals does not afford protection against infection.

2390. Littman (M. L.), Paul (J. S.), & Fusillo (M. H.). **Treatment of pulmonary actinomycosis with chloramphenicol.**—*J. Amer. med. Ass.*, 148, 8, pp. 608–612, 6 figs., 1 graph, 1952.

Particulars are given of a case of pulmonary actinomycosis (*Actinomyces israeli*) in a 46-year-old patient at the Walter Reed Army Hospital, Washington, D.C., who responded favourably to a course of 53 days' continuous chloramphenicol (chloromycetin) therapy.

2391. Hannema (L.). **Genezing van een lijder aan leveractinomycose.** [Cure of a patient with hepatic actinomycosis.]—*Nederl. Tijdschr. Geneesk.*, 96, 11, pp. 620–622, 1952. [French, German, and English summaries.]

An unusual case of actinomycosis (*Actinomyces israeli*) restricted to the liver in a 17-year old male patient at the Red Cross Hospital, 's Gravenhage, Holland, is described. A cure was effected by the combined administration of penicillin (total of 57,000,000 units in the form of depocillin and 24,000,000 of penicillin) and percoccide (460 gm.).

2392. Hvid-Hansen (N.). **Anaerobic Actinomyces (Actinomyces israeli) in groundwater.**—*Arch. path. microbiol. scand.*, 29, 3, pp. 335–338, 1951.

At the Institute of Hygiene, University of Copenhagen, samples of ground water containing hydrogen sulphide from Zealand, Denmark, were found to harbour anaerobic actinomycetes of the *Actinomyces israeli* type. On a meat liver broth medium they produced formic, propionic, lactic, and tartaric acids, which are utilized as hydrogen donors by the sulphate-reducing bacteria in the water, and a close symbiosis is therefore presumed to exist between the two groups of organisms.

2393. Conti (A.) & Negroni (P.). **Actinomicosis cutánea de la mano con granos negros.** [Cutaneous actinomycosis of the hand with black granules.]—*Act. dermo-sif., Madr.*, 42, 9, pp. 829–834, 3 figs. (1 col.), 1951. [English summary.]

An unusual case of cutaneous actinomycosis with black granules affecting the left hand of a 37-year-old female resident in the province of Buenos Aires, Argentina, is fully reported. The causal organism was identified as *Nocardia asteroides*.

2394. Suter (L. S.). **A new species of Nocardia, N. fastidiosa, n.sp., isolated from a penile ulcer.**—*Mycologia*, 43, 6, pp. 658–676, 4 figs., 1951.

Nocardia fastidiosa n.sp., isolated from a superficial penile ulcer in a 35-year-old patient at the Kennedy Hospital, Memphis, Tennessee, is a facultative anaerobe producing a ray type of colony with clubs, curls, and branches fragmenting into coccoid and bacillary forms. It produces arthrospores and alternate type branching, and the mycelial forms and spores averaged slightly under 1 μ in diameter. Neither nuclei nor septa were seen. The organism,

Gram-positive and partially acid-fast, had an optimum temperature of 37° C., and made no growth on synthetic media, Sabouraud's maltose agar, or dextrose agar, potato, or carrot.

2395. Burns (R. H. G.) & Simmons (G. C.). **A case of actinomycotic infection in a horse.**—*Aust. vet. J.*, 28, pp. 34–35, 1952. [*V. B.*, 22, 9, p. 516, 1952.]

An actinomycete thought to be allied to *Actinomyces bovis* was seen in smears and isolated culturally from a swollen and fibrosed mandibular lymph node, which had been removed surgically from a four-year-old thoroughbred, submitted for examination because of difficult breathing. Forssell's operation for wind-sucking was carried out and the node removed at the same time. The node contained a centrally placed encapsulated abscess about 1 in. in diameter. Pathologically the lesions did not resemble those of bovine actinomycosis or equine botryomycosis.

2396. Da Silva Lacaz (J.). **Actinomicose em Bovídeos.** [Actinomycosis in Bovidae.]—*Biológica*, 18, 2, pp. 32–34, 2 figs., 1952.

Cattle in São Paulo, Brazil, are liable to infection by *Actinomyces israeli* [*A. bovis*], mostly involving the tongue and jaws [No. 2246]. A cure may be effected by surgical measures combined with the oral administration of sodium or potassium iodide (10 to 15 gm. daily for 10 to 15 days) and antibiotics, such as penicillin (total of 1,500,000 to 5,000,000 units) or streptomycin (5 to 10 gm. daily dissolved in 10 to 20 ml. of physiological serum).

2397. McGaughey (C. A.), Bateman (J. K.), & Mackenzie (P. Z.). **Actinomycosis in the Dog.**—*Brit. vet. J.*, 107, 10, pp. 428–430, 1951.

Particulars are given of a case of actinomycosis in a two-year-old male greyhound [cf. Nos. 1320, 2083, 2398], supplemented by a note on the post-mortem examination and observations on the development on various media of the causal organism, which appears to be of the same type as that described by Ginsberg and Little.

2398. Mansi (W.). **Actinomycosis in the Dog.**—*Brit. vet. J.*, 108, 1, p. 14, 2 figs., 1952.

During an investigation on canine distemper virus at the Veterinary Serum Institute, Cairo, from 1943 to 1947, the writer observed a number of cases of actinomycosis [No. 2397], which occurred between April and October and were almost invariably fatal. The course of the disease was very short, death usually supervening within three to five days from the appearance of swollen lymphatic glands in the face. The subcutaneous inoculation of 24 dogs with fresh purulent material and suspensions from cultures of the causal organism (which was of the same type as that implicated in the cases of Ginsberg and Little and McGaughey) gave negative results.

2399. Shilkin (J.). **Actinomycosis and actinobacillosis.**—*J. Dep. Agric. W. Aust.* (Ser. 3), 1, 3, pp. 309–312, 2 figs., 1952.

Actinomycosis is most commonly encountered in cattle [No. 2246], occasionally in pigs, and much less frequently in other domestic animals and man. The fungus formerly regarded as causative (*Actinomyces bovis*) has now been ascertained to be non-pathogenic and it is considered that the organisms responsible (several froms of bacteria) may be present in the upper air passages and intestines; when conditions are favourable they become established in the tissues.

2400. Gregory (P. H.) & Hirst (J. M.). **Possible role of basidiospores as air-borne allergens.**—*Nature, Lond.*, 170, 4323, p. 414, 1 graph, 1952.

At the Rothamsted Experimental Station, Harpenden, Herts, the air 2 m.

above a potato plot was sampled continuously from 1st June to 30th September, 1951, using an automatic volumetric spore trap. Four or five hours after rain had fallen, following eight rainless days, a high concentration of minute hyaline basidiospores occurred, reaching a maximum of about 30,000 per cm. at about 2 a.m. on the following day and disappearing almost entirely as the *Cladosporium* cloud, present before the rain, became re-established.

In late summer the daily mean concentration of coloured basidiospores seldom fell below 1,000 per cm. of air. On dry days the basidiospore concentration was lowest in the afternoon, increasing by three to five times in the early hours of the morning, this being in almost direct contrast to other spore types which occur in minimum concentrations at night.

From this study it appears that the seasonal flush of agarics and polypores requires investigation in connexion with seasonal asthma.

2401. Abbott (J. D.), Fernando (H. V. J.), Gurling (K.), & Meade (B. W.). **Pulmonary aspergillosis following post-influenzal bronchopneumonia treated with antibiotics.**—*Brit. med. J.*, *1952*, 4757, pp. 523–525, 2 figs., 1952.

A post-mortem examination revealed the presence in the lungs of a 51-year-old female patient at King's College Hospital, London, of *Aspergillus fumigatus* (identified by H. A. Dade), which is believed to have been the primary cause of death. It is suggested that the treatment of the patient's post-influenzal broncho-pneumonia with penicillin and chloramphenicol predisposed the damaged lung to infection by the fungus [cf. No. 2402]. *Candida albicans* was isolated from the sputum but not from the lungs.

2402. Wybel (R. E.). **Mycosis of cervical spinal cord following intrathecal penicillin therapy.**—*Arch. Path.*, 53, 2, pp. 167–173, 2 figs., 1952.

A fatal case of mycotic granuloma of the leptomeninges of the cervical spinal cord, probably due to *Aspergillus* sp., in a 40-year-old female is reported from Columbus, Ohio. The clinical course simulated that of a spinal cord tumour. The fungus may have been introduced as a contaminant during treatment of an attack of pneumococcic meningitis three years earlier with intrathecal injections of penicillin [cf. No. 2401].

2403. Rolle (M.), Ilukewitsch (A.), & Mundt (W.). **Über den Erreger des ansteckenden Schnupfens der Hühner (Coryza infectiosa gallinarum).** [The causative agent of infectious coryza in fowls (Coryza infectiosa gallinarum).]—*Berl. Münch. tierärztl. Wschr.*, 1, pp. 14–16, 1951.

The authors claim that the cause of the chronic form of infectious coryza in fowls is a species of *Penicillium*, fowls being artificially infected by the fungus in pure culture. Sulphonamides are recommended for treatment.

2404. Spediacci (G.). **Sopra un caso di sospetta micosi del piede da Aspergillo.** [On a case of suspected mycosis of the foot due to *Aspergillus*.]—*Minerva ortoped.*, 2, 2, pp. 231–232, 3 figs., 1951. [Abs. in *Med. Microbiol. Hyg.* (*Excerpta med.*, Sect. IV), 5, 3, p. 264, 1952.]

A case of mycosis, primarily involving the fourth metatarsal bone and secondarily, probably by way of the blood stream, the tenth rib, is reported from Turin. The presence of *Aspergillus* [*Eurotium*] *herbariorum* was demonstrated by culture on Sabouraud's medium, and its pathogenicity to man is discussed.

2405. Vilanova (X.) & Casanovas (M.). **Dermatite dyshidrosiforme des mains et des pieds, causée par un Aspergillus.** [Dyshidrosis of the hands and feet caused by an *Aspergillus*.]—*Ann. Derm. Syph., Paris*, 78, 3, pp. 292–296, 2 figs., 1951.

A case of dyshidrosiform dermatitis of the hands and feet in a 33-year-old male is reported from Barcelona, Spain. The organism isolated from the squamae on Sabouraud's dextrose agar and other media was identified as a species of *Aspergillus* close to *A. ustus* but differing from the latter in its non-echinulate and non-striate conidia. The fungus was pathogenic to guinea-pigs.

2406. Binford (C. H.), Thompson (A. K.), & Gorham (Mary E.). **Mycotic brain abscess due to Cladosporium trichoides. Report of a case. With mycologic report by C. W. Emmons.**—*Amer. J. clin. Path.*, 22, 6, pp. 535–542, 6 figs., 1952.

The fungus isolated from an abscess in the frontal lobe of the brain of a 22-year-old negro truck-driver at the USPHS Hospital, Baltimore, Maryland, was identified as a new species of *Cladosporium*, *C. trichoides*. The flat to dome-shaped, velvety, dark olive-grey colonies produced on a modified Sabouraud's agar medium (1 per cent. neopeptone, 2 per cent. dextrose) reach a diameter of 3 cm. and a depth of 0·4 cm. after a fortnight's incubation at 30° C. The brown hyphae are 1 to 2 μ in diameter, the straight to flexuous, often septate conidiophores 2 μ, and the concatenate, elliptical, brown conidia 4 to 7 by 2 to 2·5 μ, or exceptionally fusoid to cylindrical, 15 to 20 by 2 to 3 μ. Intravenous inoculation resulted in the development of fatal cerebral lesions in mice and rabbits. The patient recovered after the excision of the abscess and showed no evidence of recurrence after a period of two years.

2407. Broc (R.) & Haddad (N.). **Tumeur bronchique à 'Scopulariopsis americana', détermination précoce d'une maladie de Gilchrist.** [Bronchial tumour due to *Scopulariopsis americana*, early determination of a Gilchrist's disease.]—*Bull. Soc. méd. Hôp. Paris*, Sér. 4, 68, 18–19, pp. 679–682, 1952.

Scopulariopsis americana, one of the pathogens implicated in the etiology of Gilchrist's disease [*Blastomyces dermatitidis*], was isolated from a primary bronchial tumour in a 25-year-old female native patient at the Hôpital Charles-Nicolle, Tunis. This is stated to be the first record of *S. americana* outside America, and its clinical course was anomalous, inasmuch as the dermatitis commonly associated with Gilchrist's disease did not appear until a later stage and then assumed the unusual form of chronic multiple abscesses. The disease terminated fatally at the end of eight months in hospital and more than a year after its onset.

2408. McVay (L. V.) & Carroll (D. S.). **Aureomycin in the treatment of systemic North American blastomycosis.**—*Amer. J. Med.*, 12, 3, pp. 289–301, 6 figs., 1952.

Following a survey of 52 contributions to the literature on North American blastomycosis (*Blastomyces dermatitidis*), the authors report the encouraging results of treatment by prolonged oral administration of aureomycin in two proved systemic cases, a 37-year-old negro farmer and a 33-year-old white labourer, at the John Gaston Hospital, Memphis, Tennessee. Extensive clinical and laboratory studies indicated that the toxicity of the drug was minimal, and a further trial of this potentially valuable remedy would appear to be merited. In *in vitro* experiments the growth of five strains of *B. dermatitidis* was inhibited by aureomycin at 20,000 to 40,000 μgm. per ml.

2409. Schoenbach (E. B.), Miller (J. M.), & Long (P. H.). **The treatment of systemic blastomycosis with stilbamidine.**—*Ann. intern. Med.*, 37, 1, pp. 31–47, 14 figs., 1952.

A further encouraging report on the use of stilbamidine and propamidine

in the therapy of systemic blastomycosis (*Blastomyces dermatitidis*) is presented from the Veterans Administration Hospital, Fort Howard, Maryland [No. 2096]. Besides the Indian patient already referred to [whose age was 26 and not 33 as stated in error], three others, aged 32, 42, and 34, benefited from the treatment. Since the submission of their manuscript for publication, the authors have been informed of a further seven cases of the disease in which stilbamidine elicited a favourable response.

2410. Emmons (C. W.). **Isolation of Cryptococcus neoformans from soil.**—*J. Bact.*, 62, 6, pp. 685–690, 4 figs., 1951.

Four typical strains of *Cryptococcus neoformans*, one giving rise to a highly mucoid variant, were isolated by the inoculation of mice with samples of soil from Loudoun County, Virginia [No. 1428]. Compared with three strains of human origin and Sanfelice's original strain, the soil isolates were typical of the species, slowly producing acid but no gas in glucose, laevulose, mannose, and sucrose and causing the death of mice.

2411. Foley (G. E.) & Uzman (L. L.). **Studies on the biology of Cryptococcus. IV. Isolation of a highly polymerized polysaccharide from encapsulated strains.**—*J. infect. Dis.*, 90, 1, pp. 38–43, 2 figs., 1952.

An alkali extraction method used at the Children's Medical Center, Boston, Massachusetts, for the isolation of a highly polymerized polysaccharide from 10-day cultures of *Cryptococcus neoformans* [Nos. 2107, 2254–5] is described. The product is Bial-positive, contains only a small amount of reducing substance, 0·2 to 0·24 per cent. nitrogen (not as glucosamine or amino acids), and no phosphorus. Intrinsic viscosity, calculated by extrapolation to infinite dilution, was found to range from 16 to 27·7 in different preparations, which were serologically active with appropriate antisera. The observation that hyaluronidase destroys the capsule of *C. neoformans* [No. 1366] could not be confirmed.

2412. Roantree (W. B.) & Dunkerley (G. E.). **Meningo-encephalitis due to Cryptococcus neoformans : report of a case.**—*Lancet*, 262, 6722, pp. 1274–1278, 12 figs., 1952.

A case of meningo-encephalitis due to *Cryptococcus neoformans* in a 55-year-old male patient is reported from the Kolar Gold Field Hospital, South India. It is stated to be the second known to have run its full course in India, and the third example of the acquisition of infection in that country. The clinical history is one of the shortest on record, death ensuing 12 days after admission to hospital, but there is reason to believe that a dormant intracranial infection was present for a considerable period before the development of symptoms. The morphological and cultural characters of the fungus are described.

2413. Garton (C. A.). **Treatment of central nervous system cryptococcosis : a review and report of four cases treated with actidione.**—*Ann. intern. Med.*, 37, 1, pp. 123–154, 1 diag., 2 graphs, 1952.

This is a comprehensive review and discussion of the literature (79 contributions) on the therapy of cryptococcic meningitis (*Cryptococcus neoformans*), supplemented by a detailed report from the Presbyterian Hospital, New York [cf. No. 2253], on four patients treated with actidione [No. 2256], of whom two were still surviving at the time of writing. The toxicity of the antibiotic is not considered to be such as to preclude its use, preferably in conjunction with fever therapy [No. 1864]. *Bacillus subtilis* derivatives [No. 1265] are also considered to be worthy of further investigation.

2414. Marshall (M.) & Teed (R. W.). **Torula histolytica meningo-encephalitis : further report.**—*Ann. intern. Med.*, 34, 5, pp. 1277–1279, 1951.

No recurrence of meningo-encephalitis due to *Torula histolytica* [*Cryptococcus neoformans*: cf. next entry] in the girl placed on sulphadiazine and later on potassium iodide therapy at the age of nine at Ann Arbor, Michigan [No. 159], has been observed during the past six years.

2415. Cabieses Molina (F.), Ravens (J. R.), & Eidelberg (E.). **Meningitis por Torula histolítica (presentación de un caso clínico).** [Meningitis due to *Torula histolytica* (report of a clinical case).]—*Rev. Neuro-psiquiat.*, 14, 1, pp. 90–103, 1951. [Abs. in *Excerpta med., Amst.*, Sect. VI, 6, 5, pp. 678–679, 1952.]

The first authenticated case of meningitis caused by *Torula histolytica* [*Cryptococcus neoformans*: cf. preceding entries] is recorded from Peru, the patient being a 17-year-old girl who was still alive six weeks after a posterior decompressive operation. The meningeal fragments and cerebrospinal fluid sediment contained cells of the fungus 5 to 10 μ in diameter. Animal inoculations gave positive results.

2416. Robertson (H. C.) & Moseley (V.). **Cryptococcus meningitis : report of case with survival after 14 months.**—*Ann. intern. Med.*, 36, 6, pp. 1538–1540, 1952.

A case of meningitis caused by *Cryptococcus neoformans* in a 33-year-old carpenter is reported from the Roper Hospital, Charleston, South Carolina. Following a course of therapy which included the adminstration of antibiotics, iodides, and autogenous vaccines, the patient recovered sufficiently to resume work and was still active 14 months after the onset of the illness.

2417. Berk (M.) & Gerstl (B.). **Torulosis (cryptococcosis) producing a solitary pulmonary lesion : report of a four-year cure with lobectomy.**—*J. Amer. med. Ass.*, 149, 14, pp. 1310–1312, 3 figs., 1952.

A case of solitary pulmonary torulosis (*Cryptococcus*) [*neoformans*] simulating a tumour is reported from the Veterans Administration Hospital, Oakland, California, bringing the recorded number to six. The 30-year-old patient was still living four years after lobectomy, with no signs of recurrence or dissemination of the disease. Since the lung may be the portal of entry of this highly dangerous pathogen, early surgical excision of circumscribed pulmonary lesions is recommended.

2418. Haskins (R. H.) & Thorn (J. A.). **Biochemistry of the Ustilaginales. vii. Antibiotic activity of ustilagic acid.**—*Canad. J. Bot.*, 29, 6, pp. 585–592, 1 pl., 1951.

Ustilagic acid, obtained from *Ustilago zeae* [*U. maydis*], when incorporated in potato dextrose agar completely inhibited growth of *Cryptococcus neoformans* and *Candida albicans* at concentrations of 10 to 15 and 15 to 20 γ per ml. agar, respectively. In contrast to other antibiotics it was approximately twice as potent against these organisms at 22° C. as at 37° in Sabouraud's agar. It may, therefore, prove useful in the treatment of moniliasis infections, such as those on finger nails [cf. Nos. 1959–1961], where *C. albicans* grows at relatively low temperatures.

2419. De Almeida (F.), Moura (R. de A.), & Monteiro (E. L.). **Granulomatose paracoccidióidica.** [Paracoccidioidal granulomatosis.]—*Rev. Inst. Lutz*, 10, pp. 53–54, 3 figs., 1950. [Abs. in *Excerpta med., Amst.*, Sect. IV, 5, 5, pp. 504–505, 1952.]

The 100 cultures of *Paracoccidioides brasiliensis* of the pilose type studied by the authors at the Instituto Adolfo Lutz, São Paulo, Brazil, fell into three groups,

composed of (*a*) white, pilose colonies which seem to disintegrate on ageing, revealing a dark background; (*b*) rugose, pale cream-coloured colonies, adhering firmly to the medium; and (*c*) transitional between (*a*) and (*b*). The cerebriform type of growth frequently encountered at 37° C. in cultures of material from Rio de Janeiro and São Paulo is considered to be merely a high-temperature variant of (*a*).

2420. Torres (C. M.), Duarte (E.), Guimães (J. P.), & Moreira (L. F.). **Destructive lesion of the adrenal gland in South American blastomycosis (Lutz' disease).**—*Amer. J. Path.*, 28, 1, pp. 145–151, 2 pl., 1952.

Two cases of South American blastomycosis (*Paracoccidioides brasiliensis*) in 58- and 49-year-old males are reported from the Instituto Oswaldo Cruz, Rio de Janeiro, Brazil. They were characterized by extensive destructive lesions of the adrenal gland, embolism of the small blood vessels by large fungus cells, giant cells derived from the vascular endothelium with numerous organisms, and endovasculitis. The caseation necrosis, responsible for considerable loss of glandular tissue, is attributed to local ischaemia consequent on embolism by large organisms with endovasculitis of the small blood vessels and the associated granulomata.

2421. Young (J. M.), & Ulrich (Elizabeth). **Chromoblastomycosis : report of case.**—*Amer. J. clin. Path.*, 22, 3, pp. 263–266, 5 figs., 1952.

Phialophora verrucosa was isolated in pure culture from an ovoid, verrucous, raised, scaling lesion over the dorsum of the left hand in a 58-year-old farmer at the Kennedy Hospital, Memphis 15, Tennessee. This is believed to be the 14th case of chromoblastomycosis reported from North America and the first from the State of Mississippi, in which the patient was resident.

2422. Vanbreuseghem (R.), Vandepitte (J.), Thys (A.), & Windey (W.). **Premier cas de chromoblastomycose par Phialophora pedrosoi chez un indigène au Congo Belge.** [First case of chromoblastomycosis caused by *Phialophora pedrosoi* in a native of the Belgian Congo.]—*Ann. Soc. belge Méd. trop.*, 31, 4, pp. 495–500, 3 figs., 1951. [Flemish summary.]

The first case of chromoblastomycosis (*Phialophora pedrosoi*) is recorded from the Belgian Congo [No. 2423] in a 25-year-old male native, who apparently recovered after excision of the verrucose ulcer on the inner malleolus of the right foot.

2423. Rasson (G.) & Thys (A.). **Deuxième cas de chromoblastomycose observé au Congo Belge.** [Second case of chromoblastomycosis observed in the Belgian Congo.]—*Ann. Soc. belge Méd. trop.*, 31, 5, pp. 547–550, 1951. [Flemish summary.]

The authors report a second case of chromoblastomycosis due to *Phialophora pedrosoi* from the Belgian Congo, found in November 1949, at Yumbi, south-east of Stanleyville, causing a cutaneous tumour on the right foot of a 40-year-old male native.

2424. Castro (A.) & Trejos (A.). **Constatación del primer caso centroamericano de coccidioidomycosis (nota previa).** [Verification of the first Central American case of coccidioidomycosis (preliminary note).]—*Rev. méd. C. Rica*, 10, 204, pp. 89–90, 1951. [Abs. in *Excerpta med., Amst.*, Sect. VI, 6, 5, p. 679, 1952.]

The subject of the first case of coccidioidomycosis [*Coccidioides immitis*] observed in Costa Rica came from Honduras, where an endemic focus of the disease is believed to exist in the Comayagua Valley.

2425. Emmett (J.). **Coccidioidin sensitivity among school children in Phoenix (skin test and X-ray survey).**—*Amer. J. publ. Hlth*, 42, 3, pp. 241–245, 1 graph, 1952.

The findings of a survey of 1,869 schoolchildren aged 5 to 17 for coccidioidin sensitivity, using skin tests and photofluorographic chest films, at Phoenix, Arizona, are presented. There were 794 (42 per cent.) positive reactors, with no significant differences on the basis of sex or nationality (Spanish-American or American). Sensitivity to the antigen was found to increase with length of residence in the locality, while an unpaved, dusty area of the city yielded a higher proportion of positive responses to the tests than other sections relatively free from dust [cf. No. 1670].

2426. Fraser (C. G.), Monroe (S. E.), & O'Hare (J. E.). **Coccidioidomycosis and tuberculosis in the same bones.**—*Ann. Surg.*, 133, 1, pp. 116–122, 7 figs., 1951.

A case of tuberculosis and disseminated coccidioidomycosis (*Coccidioides immitis*) in the same bones of the right foot in a 52-year-old patient at the Veterans Administration Hospital, Tucson, Arizona, is presented. The tubercle bacilli were first cultured from the bones and draining sinuses, then tissue biopsies revealed co-existent coccidioidomycosis. After two courses of streptomycin no further evidence of tuberculosis could be demonstrated in the lesions, which thenceforth assumed the form of a pure coccidioidal infection. Treatment consisting primarily of rest in splints resulted in a steady improvement, and at the time of writing the prognosis was regarded as hopeful. This is believed to be the first case of its kind on record.

2427. Mackler (Helen). **Coccidioidomycosis: a disease without a 'natural history'.**—*J. Amer. med. Wom. Ass.*, 6, 9, pp. 341–344, 1951.

Fourteen contributions to the relevant literature form the basis of this survey of essential information on the history, epidemiology, symptomatology, and course of coccidioidomycosis [*Coccidioides immitis*] in the San Joaquin Valley of California.

2428. Newcomer (V. D.), Wright (E. T.), & Tamblyn (E. Elizabeth). **The embryonated egg as a culture medium for the animal phase of Coccidioides immitis.**—*J. infect. Dis.*, 90, 3, pp. 258–266, 5 figs., 1952.

Investigations conducted under the auspices of the Veterans Administration Center, Los Angeles, California, failed to substantiate recent claims as to the value of the embryonated chicken egg as a medium for the massive culture of *Coccidioides immitis* in the spherule stage [No. 1822].

2429. Redaelli (P.), Cavallero (C.), Borasi (M.), Sala (G.), & Mira (A.). **Infezione sperimentale de Coccidioides immitis e steroidi corticosurrenali.** [Experimental infection by *Coccidioides immitis* and adrenocortical steroids.] —*Mycopathologia*, 6, 1, pp. 7–14, 2 pl., 1951. [English summary.]

Following subcutaneous injection with *Coccidioides immitis*, 20 rats developed a giant cell and fibroblastic granuloma, but no general infection. Treatment with desoxycorticosterone or cortisone did not affect the course or histological pattern of infection. In rats treated with cortisone infection was more pronounced, the subcutaneous granuloma showed larger necrotic and exudative foci, no fibroblastic tissue formed, fungal growth was marked, and visceral lesions developed. These results agree with the inhibitory effect of cortisone on allergic and immune responses and with the catabolic effect of the hormone on protein metabolism.

2430. Rohn (J. G.), Davila (J. C.), & Gibson (T. E.). **Urogenital aspects of coccidioidomycosis: review of the literature and report of two cases.**—*J. Urol.*, 65, 4, pp. 660–667, 3 figs., 1951.

Two cases of coccidioidal epididymitis caused by *Coccidioides immitis* are reported from California, one from the Southern Pacific General Hospital,

San Francisco, and the other from the bone and joint clinic of Stanford University Hospitals. In the former patient, a 40-year-old negro, infection was limited to the epididymis, but in the latter, a Filipino aged 38, there was also widespread dissemination. Apart from the first of these two cases, no instance with clinical urological manifestations was revealed by a study of the records of 47 patients at the Southern Pacific General Hospital. Of a total of 214 autopsies reported in the relevant literature, 57 (26·6 per cent.) showed renal involvement, in four (1·8) the prostate was infected, in two (0·9) the epididymis, and in one (0·4) the seminal vesicles and testes.

It is concluded from these findings that coccidioidomycosis of the urinary tract is of little importance, whereas it merits recognition in the differential diagnosis of genital granulomata.

2431. Vogel (R. A.) & Conant (N. F.). **Coccidioides immitis spherule antigen in a complement fixation test for experimental coccidioidomycosis.**—*Proc. Soc. exp. Biol., N.Y.*, 79, 3, pp. 544–547, 1952.

A method is described for the preparation of a serologically active antigen of *Coccidioides immitis* from egg yolk material containing spherules. 'Spherule antigen' used in a complement fixation test reacted with sera from rabbits infected by the fungus and from those hyperimmunized with the antigen. Low titres to coccidioidin in hyperimmunized rabbits were stimulated by the antigen. Antibodies to the homologous antigen and coccidioidin from the serum of a hyperimmunized rabbit were completely absorbed by the spherule antigen, but not those from the serum of a rabbit infected with *C. immitis*.

2432. Wier (R. H.), Egeberg (R. O.), Lack (A. B.), & Leiby (G. M.). **A clinical trial of prodigiosin in disseminated coccidioidomycosis.**—*Amer. J. med. Sci.*, 224, 1, pp. 70–76, 1952.

Of 14 hospital patients with disseminated coccidioidomycosis (*Coccidioides immitis*) treated with prodigiosin [No. 1662] under the auspices of the Veterans Administration Center, Los Angeles, California, three have apparently recovered and three have shown evidence of clinical improvement. Of the eight who failed to respond, five were moribund when the treatment was started. The results are considered to justify further trials.

2433. Carmichael (J. W.). **The pulmonary fungus Haplosporangium parvum. II. Strain and generic relationships.**—*Mycologia*, 43, 6, pp. 605–624, 4 figs., 1951.

A comparative study of 15 strains of *Haplosporangium parvum* [Nos. 920, 1882, 1895] obtained from animals in Arizona, Texas, Montana, Idaho, and Alberta demonstrated that the morphological characters of the colonies were influenced to some extent by the geographical origin of the strains. Northern strains grew more slowly at room temperature than did southern ones, the spores were somewhat larger, and they formed chlamydospores at a lower temperature. In contrast to most southern strains they produced nodules when injected subcutaneously into guinea-pigs and mice. One Montana strain resembled northern strains in some respects and southern in others. The differences among the strains do not justify splitting *H. parvum* into two or more species. The presence of erect fertile hyphae and chains of conidia compels the exclusion of *H. parvum* from the genus *Haplosporangium*.

2434. Bullen (J. J.). **Epizootic lymphangitis.**—*J. R. Army vet. Cps*, 21, 4, pp. 158–159, 1950; 22, 1, pp. 8–11, 1 diag., 1951.

The main purpose of this article is to draw attention to serious gaps in the knowledge of epizootic lymphangitis of the Equidae (*Cryptococcus farciminosus*) [*Histoplasma farciminosum*: No. 2257], three severe outbreaks of which

have occurred during the past 50 years: in England and Ireland after the South African war; in Europe during and after the first world war; and in Italy, Burma, and India during the second. Following an introductory note on the history, epidemiology, and diagnosis of the disease and the identity of the causal organism, the author describes the clinical symptoms, development of individual lesions, and gross pathology of the lesions.

2435. Kaliski (S. R.), Beene (Mary L.), & Mattman (Lida). **Geotrichum in blood stream of an infant.**—*J. Amer. med. Ass.*, 148, 14, pp. 1207–1209, 1952.

A species of *Geotrichum* (identified by Dr. N. Conant of Duke University, North Carolina) was isolated on dextrose agar slants, Sabouraud's agar, and cooked meat broth from the blood of a two-month-old Mexican male infant suffering from miliary tuberculosis at the Santa Rosa Hospital, San Antonio, Texas.

2436. Hazen (Elizabeth L.) & Tahler (E. D.). **Quantitative complement-fixation tests for evidence of histoplasmosis and blastomycosis.**—*Rep. N.Y. St. Dep. Hlth, 1951*, pp. 73–74, 1951.

In complement-fixation tests at the New York State Department of Health with 250 human sera from suspected cases of histoplasmosis and blastomycosis, non-reacting sera constituted 65 per cent. of the specimens examined. Reacting sera (titres of 8 or greater) comprised 12 per cent. of the total (28 sera from 17 patients). Sera from 15 of these patients reacted with one or both of the *Histoplasma capsulatum* antigens. These subjects were either known or suspected to be suffering from histoplasmosis, with a definite history of pulmonary involvement. Seven reacted positively to histoplasmin and three to tuberculin skin tests. One patient showed definite evidence of tuberculosis. The sera from the two remaining patients, both with proved blastomycosis, gave reactions with the *Blastomyces dermatitidis* antigens. Low reactions (titres less than 8) occurred in 42 sera from 29 patients with one or both of the *Histoplasma* antigens. The results of this study strongly emphasize the need for antigens of greater specificity.

2437. Bocobo (F. C.) & Reyes (A. C.). **Histoplasmin and tuberculin sensitivity among Filipino medical and nursing students.**—*Acta med. philipp.*, 7, 1, pp. 1–19, 1 map, 1950.

During 1948–9 histoplasmin and tuberculin skin tests were carried out on 477 medical and nursing students (198 males and 279 females, aged 18 to 34 years) of the University of the Philippines, Manila. Only 22 or 4·61 per cent. were positive to histoplasmin, whereas 467 (97·9) were tuberculin reactors. Of the histoplasmin reactors 10 were males and 12 females, representing 0·05 and 4·3 per cent., respectively, of the sexes, and all were tuberculin-sensitive; only one showed evidence of pulmonary calcification. Chest roentgenograms of 446 students showed pulmonary calcification in 13 (2·9). The histoplasmin reactors were distributed in the major regions of the island of Luzon and in the Visayas.

2438. De Carvalho (A.). **Sobre a histoplasmose. I. Conceito moderne: histoplasmose maligna e benigna. Histoplasmose infecção. Histoplasmose pulmonar benigna e residual. II. Estudo baseado em 1372 individuos com 145 reatores positivos a histoplasmose na cidade do Rio de Janeiro.** [On histoplasmosis. I. Modern concept: malignant and benign histoplasmosis. Histoplasmosis infection. Benign and residual pulmonary histoplasmosis. II. Study based on 1,372 individuals with 145 positive reactors to histoplasmosis in the city of Rio de Janeiro.]—*Clin. tisiol.*, 4, 4, pp. 35–98, 1950. [Portuguese. Abs. in *Intern. Med.* (*Excerpta med., Amst.* Sect. VI), 6, 3, pp. 350–351, 1952.]

Information is presented on the definition, history, etiology, portals of entry, symptomatology, pathology, and diagnosis of histoplasmosis (*Histoplasma*) [*capsulatum*] and the specificity of the histoplasmin test. Among 1,372 persons subjected to X-ray examination, combined with tuberculin and histoplasmin tests, in Rio de Janeiro, Brazil [cf. No. 2134], 145 reacted positively to histoplasmin, the percentages in different age groups being as follows: up to six years 2·7; 7 to 12, 2·9; 13 to 17, 14·9; 14 to 19, 20; 20 to 39, 27; and 40 to 59, 28·3. Centres of infection appear to exist in the north, north-east, centre, and south of the country. Residual X-ray pictures were very similar to those observed in the endemic areas of the United States. Cultures of the fungus could not be obtained from suspected material.

2439. Menges (R. W.), Furcolow (M. L.), Larsh (H. W.), & Hinton (Agnes). **Laboratory studies on histoplasmosis. I. The effect of humidity and temperature on the growth of Histoplasma capsulatum.**—*J. infect. Dis.*, 90, 1, pp. 67–70, 1952.

This is a joint report from the Midwestern Communicable Disease Center, Kansas City, and the Communicable Disease Center, Public Health Service, Atlanta, Georgia, on the effect of humidity and temperature on the growth of *Histoplasma capsulatum* on elm bark and soil [No. 1698]. The fungus did not grow in any of the tests at less than 100 per cent. relative humidity and its temperature range extended only from 20° to 30° C. It developed more rapidly on bark or soil wetted before inoculation than on dry material, incipient growth being apparent in a week in the former case but not until after three weeks in the latter. Spores of *H. capsulatum* remained viable after six to eight weeks at 5°. At 20° to 25° a number of positive subcultures were obtained from experiments at different humidities. At 40° one of six jars was found positive by culture but at 50° there was no sign of life at the end of six to eight weeks.

In supplementary experiments with *Blastomyces dermatitidis* and *Sporotrichum schencki*, the former grew exclusively at 100 per cent. relative humidity, whereas the latter was still developing at 93 but not at 87.

2440. Schwartz (B.) & Spitz (L. J.). **Histoplasmosis in epidemic form. A follow-up study.**—*Arch. intern. Med.*, 89, 4, pp. 541–546, 3 figs., 1952.

At the United States Army Station Hospital, Camp Gruber, Oklahoma, the authors followed up one out of 26 cases of diffuse pneumonitis which occurred as an epidemic at the Camp in 1944 (*Arch. intern. Med.*, 79, pp. 626–641, 1947). The results of roentgen examinations and skin and complement-fixation tests indicate that this case represents the final stage of acute, benign histoplasmosis (*Histoplasma capsulatum*) [Nos. 2438, 2452]. Attention is drawn to four recent epidemics of a similar nature in which the etiology has never been established.

2441. Schwartz (S. O.) & Barsky (S.). **Report of 193 marrow biopsy specimens cultured for Histoplasma capsulatum.**—*Blood*, 7, 5, pp. 545–549, 4 figs., 1952.

Only one of the 193 specimens of marrow from cases at the Cook County Hospital, Chicago, cultured on Littman's medium [No. 847] and sheep's brain agar, yielded *Histoplasma capsulatum* [No. 1680], the patient being a 19-year-old negress suffering from extreme weakness, coughing, and shortness of breath. Considering the high incidence of histoplasmin reactors in the locality, routine cultures of the marrow would appear to be of little value in the detection of the disease.

2442. Hutchison (H. E.). **Laryngeal histoplasmosis simulating carcinoma.**—*Brit. J. Path. Bact.*, 64, 2, pp. 309–319, 2 pl. (1 col.), 1952.

A case of histoplasmosis (*Histoplasma capsulatum*) simulating cancer of the

larynx in a 72-year-old male is reported from the Western Infirmary of Glasgow. The patient, a retired mining engineer who had spent 30 years in India previous to 1934, made a good recovery, which is attributed to the natural defences of the body, supported by general measures, rather than to any specific treatment employed. The pathological histology of the lesion is described, together with observations on the composition of the fungus as revealed by histochemical methods. This is the third [fourth] case of histoplasmosis to be diagnosed in this country but contracted abroad, the first having been reported by Derry *et al.* in *Lancet*, 242, pp. 224–227, 6 figs., 1942.

2443. Tucker (H. A.). **Histoplasmosis on the Isthmus of Panama. Summary of epidemiological survey (1949–1950) and report of fourth local case (1951).**—*Amer. J. trop. Med.*, N.S., 1, 3, pp. 462–469, 2 figs., 1952.

The information presented in this paper has already been noticed from another source [No. 2279].

2444. Mochi (A.) & Edwards (Phyllis Q.). **Geographical distribution of histoplasmosis and histoplasmin sensitivity.**—*Bull. World Hlth Org.*, 5, 3, pp. 259–291, 1 map, 1952. [French summary.]

In the preparation of this useful survey of the available information on the geographical distribution of histoplasmosis (*Histoplasma capsulatum*) and histoplasmin sensitivity the authors consulted 370 contributions to the pertinent literature, many of which have been noticed from time to time in this *Review*. An annex (pp. 281–282) contains suggestions for future studies on histoplasmin sensitivity.

2445. McClellan (J. T.), Scherr (G. H.), & Hotchkiss (Margaret). **A clinical, pathological, and mycological study of a fatal case of histoplasmosis in an infant.**—*Mycopathologia*, 6, 2, pp. 86–91, 10 figs., 1951.

Full clinical details are given of a fatal case of acute, disseminated histoplasmosis in a three-month-old female infant at the Good Samaritan Hospital, Lexington, Kentucky. An ante-mortem liver biopsy revealed numerous encapsulated organisms, identified as *Histoplasma capsulatum*. At autopsy the fungus was found in the lungs, thymus, mediastinal and retroperitoneal nodes, liver, adrenals, spleen, and kidneys. A portion of emulsified liver was inoculated into mice and *H. capsulatum* was recovered from the tissues four weeks later. A study of the fermentation properties of the fungus showed that no acid or gas was produced in media containing glucose, sucrose, lactose, maltose, mannose, rhamnose, trehalose, dulcitol, sorbitol, mannitol, or xylose.

2446. Loosli (C. G.), Grayston (J. T.), Alexander (E. R.), & Tanzi (F.). **Epidemiological studies of pulmonary histoplasmosis in a farm family.**—*Amer. J. Hyg.*, 55, 3, pp. 392–401, 1952.

This is an amplified version of the report previously presented [No. 2281] on the outbreak of pulmonary histoplasmosis (*Histoplasma capsulatum*) in an Indiana farm family. Besides the father and two sons already referred to, six other members were involved to a varying extent, presumably through the inhalation of dust stirred up in the cleaning of a disused silo.

2447. Suárez (R. M.), Buso de Casas (C.), & Santros (J. A.). **La sensibilización cutánea a la histoplasmina y a la coccidiodina en los Puerto-rriquenos.** [Skin sensitivity to histoplasmin and coccidioidin in Puerto Ricans.]—*Bol. Asoc. méd. P. R.*, 43, 5, pp. 285–291, 1951. [*B.A.*, 26, No. 12605.]

Of 1,055 natives of Puerto Rico 12·7 per cent. reacted positively to the histoplasmin skin test. Only 1 per cent. of 187 were positive to the coccidioidin test.

2448. Grayston (J. T.). **A study of the complement fixation reaction in histoplasmosis.**—*J. Lab. clin. Med.*, 40, 1, pp. 90–101, 1952.

At the Department of Medicine, University of Chicago, Illinois, a complement fixation test for histoplasmosis (*Histoplasma capsulatum*), involving the use of a whole yeast cell preparation as antigen, was performed on sera from 2,000 individuals. Seven patients with culturally proved histoplasmosis were encountered, sera from each of whom reacted in the test, five at serum dilutions exceeding 1 in 40, and the remaining two at 1 in 20. The only other reactors at dilutions above 1 in 40 were two sons of a proved case in which there was strong epidemiological evidence of active infection by the fungus. Of 49 persons suspected of harbouring active infections on the basis of recent histoplasmin skin test conversion or pulmonary infiltrates, together with positive histoplasmin and negative tuberculin skin tests, 50 per cent. reacted in the complement fixation test. Conversely, among 100 in whom active infection appeared improbable on the basis of negative histoplasmin skin tests, only one reaction occurred and that at the lowest dilution employed (1 in 5). It is concluded that the complement fixation test is of definite value in diagnostic studies of histoplasmosis.

2449. Verge (J.) & Cauchy (L.). **La réaction à l'histoplasmin chez le Cheval.** [The reaction to histoplasmin in the Horse.]—*C. R. Soc. Biol., Paris*, 146, 9–10, p. 657, 1952.

At the Veterinary College, Alfort, France, the application of the histoplasmin test to 36 Equidae [see next entry] gave uniformly negative results.

2450. Furcolow (M. L.) & Menges (R. W.). **Comparison of histoplasmin sensitivity rates among human beings and animals in Boone County, Missouri.**—*Amer. J. publ. Hlth*, 42, 8, pp. 926–929, 1 graph, 1952.

A comparison is presented of the rates of reaction to histoplasmin among children and animals in Boone County, Missouri. In horses [see preceding entry] the rates are similar to those prevailing among children but slightly lower. The sheep and cattle rates are also comparable, the latter being somewhat lower. Reactions also occur among swine and chickens [see next entry], but age-specific rates could not be determined. From an analysis of the reaction rates of children and cattle in the vicinity of a case of bovine histoplasmosis (*Histoplasma capsulatum*), it appears that the bovine rates were higher and the human ones lower than among the corresponding groups in the county as a whole. The most remarkable finding of this comparative study on histoplasmin sensitivity is the increasing rates of reaction with age in all species.

2451. Zeidberg (L. D.), Ajello (L.), Dillon (Ann), & Runyon (Laliah). **Isolation of Histoplasma capsulatum from soil.**—*Amer. J. publ. Hlth*, 42, 8, pp. 930–935, 2 maps, 1952.

Soil mycological studies were made as part of the general epidemiologic investigation of histoplasmosis (*Histoplasma capsulatum*) in Williamson County, Tennessee [Nos. 1918, 2145, 2446], using a modification of the soil-flotation, mouse-inoculation method. *Histoplasma capsulatum* was isolated from 11 out of 299 soil samples (3·7 per cent.) and from 7 out of 51 specimens taken from inside chicken houses or yards. Nine out of 92 soil samples from sheltered sites were positive and two (from chicken yards) out of 207 samples from open ones. The prevalence of histoplasmin sensitivity in domestic fowls appeared to be extremely low; no cases of chicken histoplasmosis were found. The organism was associated with shallow, acid soils of slow permeability.

2452. Furcolow (M. L.) & Larsh (H. W.). **Direct isolation of Histoplasma capsulatum from soil : probable etiological relationship to Camp Gruber pneumonitis.**—*Proc. Soc. exp. Biol., N.Y.*, 80, 2, pp. 246–248, 1952.

The first direct isolation of *Histoplasma capsulatum* from the soil is reported, i.e., from samples collected in a storm cellar at Camp Gruber, Oklahoma, where severe pneumonitis was contracted by 26 soldiers in 1944. The fungus was also isolated on three occasions from mice inoculated with suspensions of the soil. From this evidence and that obtained by studies of the men involved it is concluded that *H. capsulatum* was the cause of the epidemic [No. 2440].

2453. Kotcher (E.), Robinson (J. W.), & Miller (Madelyn P.). **The isolation of Histoplasma capsulatum from tissues of experimentally infected Mice.**—*J. Bact.*, 62, 5, pp. 613–620, 1951.

At the School of Medicine, University of Louisville, Kentucky, *Histoplasma capsulatum* was cultured from all 42 experimentally infected mice by the simultaneous use of five different media. It was observed by direct microscopic examination in combined Leishman-stained tissue impressions of liver, spleen, and heart blood in 85·7 per cent. and in the liver and spleen in 78·5, as compared with only 11·9 in the heart blood. The most efficient medium was brain-heart infusion blood agar, followed in descending order by Sabouraud's dextrose agar, brain–heart infusion agar, potato dextrose agar, and mycophil agar. The highest percentage (97·6) of cultural isolations was obtained with spleen inoculation on Sabouraud's dextrose agar. A high degree of simultaneously infected livers and spleens from the same animals was demonstrated.

2454. Connell (G. H.) & Skinner (C. E.). **The origin of some species of the genus Candida in non-pseudomycelium-producing anascosporogenous yeasts.**—*Mycopathologia*, 6, 2, pp. 65–71, 1 pl., 1951. [Spanish summary.]

Examined in 1947 and early in 1948, 131 cultures of anascosporogenous yeasts isolated from the human body were all typical members of *Cryptococcus*. No mycelium was produced in repeated tests in maize meal agar scratch plates or beef peptone gelatin slabs. By 1950, 17 cultures had become morphologically identical with members of *Candida*, and it is concluded that some species of *Candida* can be morphological dissociates of *Cryptococcus*. The paper concludes with a discussion of the status of the former genus.

2455. Baird (Katharine H.). **Unusual syndrome associated with Candida albicans infection.**—*Pediatrics, Springfield*, 4, 6, pp. 730–734, 2 figs., 1949. [Spanish summary.]

A syndrome associated with *Candida albicans* infection in a boy first admitted to the Children's Hospital, Milwaukee, Wisconsin, at the age of 16 months is described. It consisted of alopecia, retarded growth, paronychia, and eruptions of lesions localized in different parts of the face and body. The patient responded favourably to oral thymol therapy and when seen again at the ages of six and 8½ years was still making good progress.

2456. Brygoo (E. R.) & Seys (R.). **Présence dans les extraits de culture de Mycobacterium tuberculosis d'un facteur favorisant la croissance des champignons levuriformes du genre Candida.** [Presence in the culture extracts of *Mycobacterium tuberculosis* of a factor promoting the growth of yeast-like fungi of the genus *Candida*.]—*Ann. Inst. Pasteur*, 81, 1, pp. 107–109, 1951.

Evidence is presented from the Institut Pasteur, Saigon, Indo-China, for the existence, in the products of metabolism or lysis of *Mycobacterium tuberculosis*, of a factor, active at a dilution of 10^{-5}, which stimulates the growth of *Candida albicans*, *C. tropicalis*, *C. krusei*, and an as yet undetermined azymatic species [No. 2294].

2457. Leben (C.), Stessel (G. J.), & Keitt (G. W.). **Helixin, an antibiotic active against certain fungi and bacteria.**—*Mycologia*, 44, 2, pp. 159–169, 1 pl., 1952.

At the Wisconsin Agricultural Experiment Station an antibiotic substance designated helixin, produced by an unidentified species of *Streptomyces* bearing tight spore spirals, completely inhibited macroscopic growth by *Candida albicans* and *Trichophyton mentagrophytes* at 7·5 and 3·75 μgm. per ml., respectively.

2458. Casida (L. E.) & McCoy (Elizabeth). **Acquired resistance in Candida albicans to an antibiotic produced by a sporeforming bacillus.**—*J. infect. Dis.*, 90, 3, pp. 283–290, 4 figs., 1 diag., 1 graph, 1952.

Studies are reported from the Department of Bacteriology, University of Madison, Wisconsin, on the acquisition by *Candida albicans* of resistance to a new anti-fungal substance produced by a bacillus, B-40, resembling *Bacillus subtilis*. The resistance is manifested by a decrease in the lag period before the fungus is able to grow in the presence of the antibiotic. Resistant strains can easily be developed by subculturing either from the maximum antibiotic concentration at which growth will occur or in series from growth occurring at levels of antibiotic well below the inhibitory level. After transfer 40 times in the absence of the antibiotic, a resistant culture shows a partial loss, i.e., 16 times in a culture of which the original resistance was 64 times that of the sensitive parent.

Resistance to the antibiotic is accompanied by conversion of the normal yeast phase of growth to extensive mycelial development both in broth culture and in giant colonies on agar [cf. No. 1208].

2459. Castello (L.). **Conoscenze attuali sull' azione battericida degli ultrasuoni e ricerche sperimentali sulla distruzione dei lieviti (osservazioni preliminari).** [Information available to date on the bactericidal action of ultra-sonic waves and experimental studies on the destruction of yeasts (preliminary observations).]—*G. Batt. Immun.*, 43, 3–4, pp. 124–130, 1951. [French, English, and German summaries.]

Following a survey of the literature on the bactericidal properties of ultrasonic waves, the author reports and briefly discusses the results of preliminary experiments to determine their effect on cultures of *Mycotorula* [*Candida*] *albicans*. Exposures of 15, 30, and 60 minutes reduced the proportion of colonies surviving to 30, 10, and 2 per cent., respectively, of the untreated controls. Like other yeasts, therefore, *C. albicans* is appreciably more resistant than bacteria to ultra-sonic waves.

2460. Marples (Mary J.) & Di Menna (Margaret E.). **The incidence of Candida albicans in Dunedin, New Zealand.**—*J. Path. Bact.*, 64, 3, pp. 497–502, 1952.

The incidence of *Candida albicans* was investigated in a group of 278 children and 137 young adults (medical students and nurses) at the University of Otago, Dunedin, New Zealand [cf. Nos. 1939–1940]. Samples were taken from the mouth, skin, and faeces of the children and from the first two sites in the adults. The examination of washings proved to be the most satisfactory method of isolating the fungus from oral specimens; among 170 of the children and all the adults examined by this method the incidence of the yeast was 33·5 and 50·5 per cent., respectively. Of the 188 faecal samples analysed, 30·8 per cent. harboured the fungus. There was a significant correlation between its occurrence in the oral cavity and in the faeces. *C. albicans* was not isolated from the skin of the fingers in either group. Of 80 adults with natural teeth, 36 (45 per cent.) harboured the pathogen, the corresponding proportion for 19 with dentures being 13 (68).

2461. Warren (Clara M.). **Moniliasis.**—*Med. Pr.*, *1952*, 5906, pp. 59–61, 3 figs., 1952.

In this article (No. 28 of the 19th series of 'Modern Treatment in General Practice'), which also appears in the 'Modern Treatment Yearbook' for 1953, the author gives directions for the diagnosis and therapy by up-to-date methods of various forms of moniliasis (*Candida albicans*).

2462. Chapman (G. H.). **The isolation and differentiation of Monilia and other fungi.**—*Trans. N.Y. Acad. Sci.*, Ser. II, 14, 6, p. 254, 1952.

At the Clinical Research Laboratory, New York, excessive bacterial contamination was prevented and the growth of *Candida* spp. promoted by the use of a medium consisting of 10 gm. neopeptone (Difco), 40 gm. maltose, 15 gm. bacto agar, 0·1 ml. tergitol-7, 2·5 ml. 1 per cent. bromcresol purple, and 1,000 ml. water, to which is added, after adjustment to pH 5·6, 10 minutes' sterilization at 14±1 lb. pressure, and cooling, 0·3 ml. 1 per cent. potassium tellurite and 3 ml. 1 per cent. 2, 3, 5-triphenyltetrazolium chloride. *C. albicans* produces circular, smooth, entire, convex to pulvinate, 'off-white' colonies about 4 mm. in diameter, while those of other species are more highly coloured, ranging from orange and tan to lilac, often with discoloration of the surrounding medium. Many cultures designated '*Monilia albicans*' did not present this characteristic appearance, suggesting that true *C. albicans* may comprise a narrower range of characters than that used at present to identify the species.

The selective properties of the medium depend on potassium tellurite and tergitol-7 (Carbide and Carbon Chemicals), the former inhibiting bacteria of the coli group and the latter all others. Differentiation is effected by bromcresol purple, whereby the alkaline changes common in most species of *Candida* (but not *C. albicans*) and *Saccharomyces* are detected, potassium tellurite, which is reducible, and 2, 3, 5-triphenyl tetrazolium chloride, which is reduced to red formazan by many fungi and bacteria.

Cultures were obtained on this medium from some 150 persons with chronic diseases. Of 214 cultures from the nasal cavities, two (1 per cent.) yielded *Candida*, the corresponding figures for 157 from the pharynx being 37 (24), for 11 from the gingivae 4 (36), and for 18 from the faeces 6 (33).

2463. Chermsirivathana (S.). **A rapid method of staining for fungus and monilial infection.**—*J. invest. Derm.*, 19, 1, pp. 7–8, 1 fig., 1952.

From the Western Reserve University Hospitals of Cleveland, Ohio, the writer describes a simple and inexpensive method of staining thin scrapings of skin, etc., for infection by fungi, including *Monilia* [*Candida*: cf. No. 2161]. It involves the use of a solution of methylene blue and potassium hydroxide with replacement by absorption with 25 per cent. glycerin solution (McGuir modification). The potassium hydroxide technique continues to give the most dependable results in thick scrapings [No. 2162].

2464. Edwards (R. W.) & Barkley (F. A.). **Egg culture studies of fungi.**—*Lloydia*, 15, 1, pp. 34–36, 1952.

When embryonated eggs [cf. No. 1822 and next entries] were used in an attempt to establish a screen testing programme with fungicidal drugs some fungi were so lethal for the eggs that there was no time for the drug to act. To determine inoculum dilutions that would permit time for drug action and yet develop a degree of pathogenicity for the egg, five species of fungi were used, and with each 0·1 ml. of a 24-hour Sabouraud's acid broth culture was employed, as well as 0·1 ml. of a broth culture diluted to 10^{-6} and 0·1 ml. diluted to 10^{-12}. The 10^{-0} dilutions of the culture of *Candida albicans* appeared to be ideal, while dilutions between 10^{-0} and 10^{-6} were indicated for *C. krusei*.

A dilution of 10^{-12} was best for *Aspergillus* sp. An additional series of dilutions was made using normal saline for the titrations, the original inoculum being taken from 24-hour-old Sabouraud's acid broth, using 0·1 ml. injections. Seven fungi were tested. The results indicated that with the dilution method an inoculum may be established that will allow the egg to survive long enough for the activity of the drug to be observed.

2465. Edwards (R. W.) & Barkley (F. A.). **Studies on Monilia.**—*Lloydia*, 15, 1, pp. 37–38, 1952.

When seven different 'non-pathogenic yeasts' originating in vaginal smears were cultured in embryonated eggs [see preceding and next entries], after one passage in the egg five gave mycelia, while another produced mycelia after passage through two eggs. The mycelia were not abundant, and were constant for each culture, but there were three distinct types of mycelia among the six cultures. The fermentations appeared to be those of *Candida stellatoidea* [No. 2176], but the presence of three types suggested that several species were concerned.

2466. Edwards (R. W.) & Barkley (F. A.). **Ethyl vanillate studies on embryonated eggs. IV.**—*Lloydia*, 15, 1, pp. 50–52, 1952.

To determine the activity of ethyl vanillate [No. 2142] on fungal activity in embryonated eggs [see preceding entries] a series of inoculations was made, using different dilutions of ethyl vanillate and various fungi. The results indicated only slight control.

2467. Floch (H.). **Mycoses pulmonaires dues à des champignons du genre Candida en Guyane française.** [Pulmonary mycoses due to fungi of the genus *Candida* in French Guiana].—*Publ. Arch. Inst. Pasteur Guyane* 248, 7 pp., 1951.

After briefly discussing the characters of the fungi causing pulmonary blastomycosis and listing the chief species of *Candida* and *Geotrichoides*, the author gives clinical details of a fatal case of pulmonary infection by *C. tropicalis* occurring in 1951 in a 49-year-old male patient at the Hôpital Jean Martial, Cayenne, French Guiana.

2468. Helmuth (W. T.). **Branch Laboratory, New York. Report of the Assistant Director for Clinical Research.**—*Rep. N.Y. St. Dep. Hlth, 1951*, p. 70, 1951.

In this report it is stated, *inter alia*, that the intensive use of certain antibiotics often appears to be followed by mycotic infection or by increased growth and spread of normally saprophytic species of fungi (usually *Candida* spp.).

2469. Taylor (H.) & Rundle (J. A.). **Acute moniliasis of the urinary tract.**—*Lancet*, 262, 6721, p. 1236, 1952.

A case is reported from the King George Hospital, Ilford, of acute moniliasis of the urinary tract developing in a 56-year-old female patient as a sequel to chloramphenicol therapy for acute generalized febrile illness [cf. Nos. 2291, 2293, and next entry]. Cultures from the contents of the renal pelves taken at the autopsy yielded *Candida albicans* and *C. krusei*, of which only the former was considered to be pathogenic.

2470. Kunstadter (R. H.), Maclean (Helen), & Greengard (J.). **Mycotic endocarditis due to Candida albicans.**—*J. Amer. med. Ass.*, 149, 9, pp. 829–832, 2 figs., 1952.

A case of endocarditis and sepsis due to *Candida albicans* in a seven-month-old male infant is reported from the Sarah Morris Hospital, Chicago. This is stated to be the 25th record of mycotic endocarditis in the relevant literature and the first in an infant. There is reason to believe that the dissemination of

infection was enhanced by the course of penicillin injections given for the relief of chronic pulmonary symptoms of some six months' duration [cf. preceding entries].

2471. Zettergren (L.). **Thresher's lung. (Pulmonary moniliasis). An experimental investigation.**—*Acta Soc. Med. upsal.*, 55, 5–6, pp. 257–313, 28 figs. (4 col.), 1 diag., 1950.

This important study, supplemented by a four-page bibliography, on thresher's lung or pulmonary moniliasis (*Candida albicans*) [Nos. 2147, 2290], conducted at the University of Upsala, Sweden, yielded the following information. Inhalation of sterile threshing dust induces in rabbit lungs submiliary, histiocytic granulomata, while the admixture of the fungus with the dust results in the development of submiliary to miliary tuberculoid granulomata. In general, the two types of granulomata are similarly distributed in the lungs, predominating in the inferior lobes in close connexion with the terminal bronchioles and their immediate branches. The cells of the pathogen appear to be incapable of multiplying in the rabbit lung, and the formation of fungal granulomata is attributed, therefore, to an endotoxic effect arising from disintegration products of the cells that originally entered the lung tissue together with the dust. The bronchial irritation caused by the inhalation of threshing dust is exacerbated by the presence of *C. albicans*. The X-ray picture in experimental pulmonary moniliasis resembles that of thresher's lung in man. In the rabbit the infection is associated with a substantial increase of the serum γ-globulin fraction, indicating an antibody formation evoked by the antigenic substances of the causal organism.

2472. Morin (J. E.), Leblond (S.), & Fiset (P.). **Bronchopulmonary candidosis (moniliasis). Report of three cases.**—*Canad. med. Ass. J.*, 65, 2, pp. 115–120, 4 figs., 1951.

Since the designation *Monilia* is now reserved for plant pathogens, while that of *Candida* is applied to yeast-like organisms of medical significance, it is suggested that the term 'moniliasis' be replaced by 'candidosis' in reference to a human disease caused by *C. albicans*. The three cases of broncho-pulmonary candidosis herein reported from the Quebec Veterans' Hospital responded favourably to iodide therapy.

2473. Temel (T.). **À propos d'un cas de moniliase pulmonaire.** [In connexion with a case of pulmonary moniliasis.]—*Pr. méd.*, 59, 45, p. 972, 1 fig., 1952.

A fatal case of pulmonary moniliasis in a 16-year-old male is reported from Istanbul, Turkey. *Candida albicans* was isolated from the sputum on Sabouraud's agar.

2474. Wolff (F. W.). **Moniliasis pneumonia following aureomycin therapy.**—*Lancet*, 262, 6721, pp. 1236–1238, 6 figs., 1952.

At an R.A.F. hospital the treatment with aureomycin and streptomycin of a 22-year-old naval stoker mechanic suffering from pneumonia led to the supersession in the sputum of *Haemophilus influenzae* and *Neisseria catarrhalis*, which were responsible for the infection, by large clumps of yeast-like organisms resembling *Candida albicans* [Nos. 2468–2470, and next entries]. A very serious clinical deterioration ensued but was arrested by cessation of the antibiotic treatment. When the condition was sufficiently improved penicillin and streptomycin were administered for a fortnight, after which progress was uninterrupted. It is suggested that antibiotics (especially aureomycin) for chest infections should be given in short courses alternating with periods of rest to re-establish the normal balance of the flora of the upper respiratory tract.

2475. Wolfe (E. I.) & Henderson (F. W.). **Mycotic endocarditis. Report of a case.**—*J. Amer. med. Ass.*, 147, 14, pp. 1344–1347, 1951.

A report is presented on the seventh case of mycotic endocarditis, in a 57-year-old female diabetic treated with penicillin, aureomycin [see preceding and next entries], dihydrostreptomycin, gantrisin (3, 4-dimethyl-5-sulphanilamidoisoxozole), sulphamerazine, and sulphadiazine for suspected pyelonephritis. *Candida krusei* was isolated from the blood stream during life and from the mitral valve, bronchi, and kidneys at autopsy. This is stated to be the first case of mycotic endocarditis in a diabetic and of endocarditis caused by *C. krusei*.

2476. McVay (L. V.) & Sprunt (D. H.). **A study of moniliasis in aureomycin therapy.**—*Proc. Soc. exp. Biol., N.Y.*, 78, 3, pp. 759–761, 1951.

In vitro sensitivity studies at the Institute of Pathology, University of Tennessee, demonstrated a definite inhibitory effect by methyl and propyl esters of paraben (para-hydroxybenzoic acid) on four strains of *Candida albicans* and one of *C. krusei*. The oral, vaginal, or rectal administration of paraben to 186 patients at the John Gaston Hospital, Memphis, produced no serious toxic effects and prevented the overgrowth of *C. albicans* associated with aureomycin therapy [No. 2075 and preceding entries.]

2477. Polonovski (C.). **Mycoses à Candida albicans, complications de la thérapeutique antibiotique.** [Mycoses due to *Candida albicans*, complications of antibiotic therapy.]—*Sém. Hôp., Paris*, 27, 39, p. 1718, 1951.

Attention is drawn to the frequency of thrush (*Candida albicans*) among infants in Paris as a sequel to the oral administration of antibiotics for the relief of infectious diarrhoea [cf. Nos. 1941–2]. The symptoms are usually confined to the buccal cavity and include blackening, hypertrophy, and desquamation of the tongue, excessive susceptibility to acid foods, and a whitish coating of the mucosa, which may spread to the tongue, tonsils, pharynx, and occasionally to the oesophagus. The possible relations of antibiotic therapy to the pathogenesis of the mycosis are briefly discussed.

2478. Rauramo (L.). **Yeast-like fungi during lactation on the mother's breast and in the infant's mouth.**—*Duodecim*, 67, 10, pp. 847–851, 1951. [*B.A.*, 26, No. 12601.]

Five days after delivery yeast-like fungi were recovered from 38 per cent. of 175 mothers (with 175 infants) [in Finland]. There appears to be a correlation between yeast-like fungi and nipple rhagades.

2479. Oliver (H. G.). **Asthma due to an infection : a clinical study.**—*Med. Officer*, 87, 15, pp. 149–150, 1952.

From lengthy experience in Jersey and a study of the pertinent literature the author concludes that asthma is caused by a species of *Monilia* [*Candida*: cf. No. 1705] originating in raw milk. The sputa of all the 50 cases treated and followed up for many years harboured the fungus, the elimination of which by means of potassium iodide, together with stringent precautions regarding milk, resulted in a high proportion of cures, usually within a period of four to six months. In 14 out of 16 cases of infantile eczema milk prophylaxis alone was an effective remedy; in the remaining two the symptoms disappeared after a three to four months' course of iodization.

2480. Nickerson (W. J.) & Romano (A. H.). **Enzymatic reduction of cystine by coenzyme 1 (DPNH).**—*Science*, 115, 2999, pp. 676–678, 2 graphs, 1952.

In studies at the New Jersey Agricultural Experiment Station, cystine reductase activity was found in two strains of *Candida albicans*.

2481. Salvin (S. B.), Cory (J. C.), & Berg (Margaret K.). **The enhancement of the virulence of Candida albicans in Mice.**—*J. infect. Dis.*, 90, 2, pp. 177–182, 2 graphs, 1952.

In a series of experiments over a six-month period at the Rocky Mountain Laboratory, Hamilton, Montana, 24 to 100 per cent. of white Swiss mice died within 30 days of intraperitoneal injection with doses of $1{\cdot}25 \times 10^6$ to 22×10^6 yeast cells of *Candida albicans* suspended in 2·5 per cent. gastric mucin [No. 2050], whereas the injection of comparable numbers of cells in saline proved uniformly innocuous. The most susceptible age group of the six groups tested (three to 13 weeks) was the 21-day-old. Of the four infection routes used, the intracerebral produced the highest and the subcutaneous the lowest mortality, while the intraperitoneal and the intracardial were intermediate. There were marked differences between four isolates in their pathogenicity to 60-day-old mice.

2482. Seligmann (E.). **Virulence enhancing activities of aureomycin on Candida albicans.**—*Proc. Soc. exp. Biol., N.Y.*, 79, 3, pp. 481–484, 1952.

In laboratory experiments at the Beth Israel Hospital, New York City, *Candida albicans* suspensions were non-pathogenic, and aureomycin solutions non-toxic, when either was injected intraperitonially into mice, but a mixture of the two proved lethal. A similar but less pronounced 'drug-fungus' effect was observed when aureomycin was administered for 24 hours before to four hours after inoculation with the pathogen. The virulence-enhancing activity of aureomycin was destroyed on standing for two days at room temperature or by boiling. No indication of toxin production or biological change in *C. albicans* could be detected *in vitro*, nor was any direct stimulus exerted by the drug on the growth of the fungus. The action *in vivo* took the form of lowering the animal's resistance.

2483. Lipnik (M. J.), Kligman (A. M.), & Strauss (R.). **Antibiotics and fungous infections.**—*J. invest. Derm.*, 18, 3, pp. 247–260, 1952.

In a preliminary inquiry at the University of Pennsylvania School of Medicine into the possible function of *Candida albicans* in the production of side reactions to antibiotics, aureomycin, chloromycetin, terramycin, and penicillin did not stimulate the *in vitro* growth of the fungus. The *in vitro* increase in the growth of the pathogen by material obtained from aureomycin capsules was shown to be due to their inert phosphate content. *C. albicans* and other *C.* spp. were isolated from the mouths and recta of 51 out of 63 (81 per cent.) hospital patients receiving aureomycin or chloromycetin therapy, as compared with a normal content of 5·5 per cent., the corresponding figures for penicillin being six out of 42 (14·3). No clear-cut evidence could be obtained of *in vitro* enhancement of moniliasis in mice receiving various antibiotics.

2484. Hopkins (J. G.), Weld (Julia T.), & Kesten (Beatrice M.). **The treatment of Monilia (Candida albicans) infections with carbowax–sulphur ointment (a preliminary report.)**—*J. invest. Derm.*, 18, 6, pp. 419–422, 1952.

Recent investigations, using the procedure described in *J. exp. Med.*, 85, pp. 531–542, 1947, demonstrated the complete inhibition of growth in three-hour broth cultures of *Candida albicans* at 37° C. by carbowax–sulphur in dilutions of 1 in 10,000. Encouraging results were also obtained in preliminary clinical trials with the compound in ointment form on 34 out of 35 patients at the Columbia-Presbyterian Medical Center, New York City.

2485. Marotel & Pierron. **Une nouvelle maladie du Lapin : la saccharomycose.** [A new disease of the Rabbit: saccharomycosis.]—*Bull. Acad. vét. Fr.*, 23, 3, pp. 162–164, 1950.

Particulars are given of a severe epidemic on a French rabbit farm in 1949

caused by the parasitic development of *Saccharomyces guttulatus*, normally a saprophytic occupant of the intestinal tract.

2486. Sánchez Botija (R.). **Contribución al conocimiento de las micosis gástricas.** [Contribution to the knowledge of the gastric mycoses.]—*An. Fac. Vet., Madrid*, 3, pp. 341–350, 1951. [English, French and German summaries, *V.B.*, 22, No. 2763.]

The author reports ulceration of the abomasum in an ox caused by a species of *Mucor* in Spain and describes the microscopic characters of the lesion.

2487. Ajello (L.). **The isolation of Allescheria boydii Shear, an etiologic agent of mycetomas, from soil.**—*Amer. J. Trop. Med. Hyg.*, 1, 2, pp. 227–238, 5 figs., 1952.

Four strains of *Allescheria boydii* were isolated from soil samples collected in Williamson County, Tennessee [No. 2145]. A spore suspension of one of the strains (5 ml.) mixed with 5 per cent. gastric mucin proved pathogenic to mice injected intraperitoneally with 1 ml. aliquot portions. Tables are given showing the geographical distribution and all the recorded isolations of *A. boydii*, and the habitats of other human pathogenic fungi are tabulated and discussed.

2488. Köhlmeier (W.) & Kreitner (H.). **Ein Fall von Mycetoma pedis (Madurafuss) in Wien.** [A case of mycetoma pedis (Madura foot) in Vienna.]—*Klin. Med., Wien*, 6, 8, pp. 337–342, 3 figs., 1951.

A case of mycetoma pedis in a 57-year-old female who had never left Austria is reported from the Municipal General Polyclinic, Vienna. Cultures yielded, in addition to streptococci, a fungus of the *Sporobolomyces salmonicolor* type which proved to be pathogenic to mice.

2489. Vanbreuseghem (R.). **Un problème de mycologie médicale : le pityriasis versicolor.** [A problem of medical mycology: pityriasis versicolor.]—*Ann. Inst. Pasteur*, 79, Liber jubilaris Jules Bordet, pp. 798–801, 1950.

In the Belgian Congo, pityriasis versicolor (*Malassezia furfur*) is the most prevalent mycosis of the glabrous skin [see next entry]. As in Europe, young men are particularly liable to infection. Face infections are common in the Congo; of 97 cases, 35 were confined to the neck and head, 24 were generalized, 18 affected the trunk, five the arms, and five the scalp. As all attempts to grow *M. furfur* in culture have so far failed, it is possible that the disease may be due to more than one species.

2490. Lejeune (A. O.). **Contribution à l'étude du pityriasis versicolor au Congo belge.** [A contribution to the study of pityriasis versicolor in the Belgian Congo.]—*Ann. Soc. belge Méd. trop.*, 31, 2, pp. 235–250, 1 pl., 1951. [Flemish summary.]

Studies on *Malassezia furfur* showed that, with a few individual variations, the morphology of the fungus is the same in all parts of the Belgian Congo [see preceding entry]. All attempts to grow the fungus in culture on Moore's medium with and without penicillin, Buller's medium, various other media in atmospheres containing 10 or 20 per cent. carbon dioxide, and media rich in urea or supplemented by vitamin B, were unsuccessful. The available evidence indicated that the pathogen develops between and not within the cells of the corneous layer. In four cases examined histopathologically the derma showed slight alteration, but the pigmentation of the epiderm was normal.

2491. Martin-Scott (I.). **The Pityrosporum ovale.**—*Brit. J. Derm.*, 64, 7–8, pp. 257–273, 6 figs., 1952.

Pityrosporum ovale makes very satisfactory growth on a medium consisting of 100 gm. sodium tauroglycocholate, 50 gm. oxoid peptone (mycological),

15 gm. agar, and water to 1,000 ml., with the addition of 300,000 units penicillin powder, if necessary, to reduce coccal contamination. A nuclear apparatus was demonstrated for the first time in *P. ovale* by the use of the Feulgen, acid Giemsa, and basic fuchsin stains [No. 1063]. Routine work was simplified by the adoption of Bissett's short rosin technique (The cytology and life-history of bacteria.—Edinburgh, E. & S. Livingstone, Ltd., 1950), which stains the cytoplasm pale blue, while the nucleus, surrounded by an unstained halo, is bright red. Evidence is adduced from further staining reactions and chemical investigations that the pale blue capsule brought into prominence by R. Muir's staining method [cf. No. 1209] is a stable polysaccharide with a large molecule.

Using the new medium in hanging-drop preparations without agar, the author found that reproduction in *P. ovale* is effected exclusively by septation within the parent capsule. On an average there was a 60 per cent. increase in the number of organisms by the end of six hours, after one day the original number was slightly more than doubled, and during the next week the rate of reproduction slowly decreased, the process apparently ceasing by the tenth day. Typical average measurements after three days' growth were 6 by 3 μ, with a range of 4·5 to 9 by 1·5 to 4·5 μ. The frequent reports in the relevant literature of single, thick-walled, spherical spores are believed to rest on an optical illusion due to the organism standing on end.

P. ovale was isolated from a 14-year-old male llama and a golden spaniel, both healthy, and from the results of inoculation experiments on mice and rabbits the fungus seems to be non-pathogenic. The same conclusion was reached on the basis of human experiments, in which the fungus failed to fulfil Koch's postulates as the agent of seborrhoeic dermatitis.

2492. Vilanova (X.), Esteller (J.), & Casanovas (M.). **Gomme mycosique du cou par 'Malbranchea pulchella'.** [Mycotic gummosis of the neck caused by *Malbranchea pulchella*.]—*Ann. Derm. Syph., Paris*, 78, 5, pp. 566–569, 2 figs., 1951.

Malbranchea pulchella was isolated on various standard media from lesions on the neck of a 37-year-old agricultural worker in Valencia, Spain.

2493. Vanbreuseghem (R.). **Essai de synthèse sur les dermatophytes et le traitement des affections qu'ils déterminent.** [Attempt at a synthesis of the dermatophytes and treatment of the affections which they cause.]—Brussels, Imprimerie Médicale et Scientifique (S.A.), 46 pp., 1951.

In this paper, presented to the Société belge de Dermatologie et de Syphiligraphie on 17th and 18th November, 1951, the author, after defining the term 'dermatophytes', discusses the importance and geographical distribution of these fungi, the etiology of the conditions caused, the keratolytic ability of the organisms, their classification according to Sabouraud, Emmons, Langeron and Milochevitch, and Vanbreuseghem, remedial treatment, and immunity and allergy.

2494. Bocobo (F. C.) & Garcia (D.). **The incidence of dermatophytosis of the feet among Filipino high school students.**—*J.P.I. med. Ass.*, 26, 4, pp. 169–176, 1950.

Of 203 high-school students aged 11 to 22 years examined in Manila in 1948–9 for manifestations suggestive of tinea pedis, 39 or 19·2 per cent. (of whom 38 were males) were clinically positive. Scrapings from ten (25·6) showed fungal hyphae in the potassium hydroxide mount and eight (20·5) yielded positive cultures. All eight isolated organisms were identified as *Trichophyton mentagrophytes*. Of 84 clinically negative cases examined two (2·4) gave a positive potassium hydroxide mount, one showing *T. rubrum*.

2495. Davies (A. J.). **Preliminary communication on the incidence of epidermophytosis in Army recruits.**—*J.R. Army med. Cps*, 97, 3, pp. 168–171, 2 graphs, 1951.

Of 300 recruits examined for tinea pedis at the Army School of Health [see next entry], 13 (4·33 per cent.) were severely infected, 25 (8·33) moderately, and 79 (26·33) very mildly.

2496. Davies (A. J.). **Report on the incidence of epidermophytosis of feet in 1,050 Army personnel, and a comparison of different lines of treatment.**—*J.R. Army med. Cps*, 98, 2, pp. 99–106, 2 graphs, 1952.

Of 1,050 recruits examined for tinea pedis over a three-month period at the Army School of Health [see preceding entry], 645 (61 per cent.) were infected, 98 (9 per cent.) severely, 152 (14·4) moderately, and 395 (36·7) very mildly.

2497. Fulton (J. D.) & Mitchell (R. B.). **Sterilization of footwear.**—*U.S. Armed Forces med. J.*, 3, 3, pp. 425–439, 5 figs., 1952.

At the United States Air Force School of Aviation Medicine, Randolph Field, Texas, leather samples contaminated with various pathogenic fungi, including *Microsporum gypseum*, *M. canis*, *Trichophyton mentagrophytes*, *Epidermophyton floccosum*, *T. rubrum*, and *T. schoenleini*, were sterilized by 24 hours' exposure to a gas containing 184 mg. ethylene oxide per l. Simple exposure chambers for the sterilization of shoes were designed, constructed, and tested. A container improvised from a section of a B 29 type aircraft inner tube proved to be the most satisfactory. The experimental data relating to the action of the gas on different portions of the shoes are fully described and tabulated.

2498. Catanei (A.). **Les teignes en Afrique du Nord. Répartition, formes cliniques et évolution. Champignons-parasites, traitement.** [Tineas in North Africa. Distribution, clinical forms, and development. Fungus parasites, treatment.]—*Maroc méd.*, 29, 306, pp. 955–966, 1950. [Abs. in *Excerpta med.*, *Amst.*, Sect. IV, 5, 5, p. 540, 1952.]

Favus [*Trichophyton schoenleini*] occurs in 1·7 to 32·5 per cent. of all North African children, appearing first between the third and fifth years of age and almost invariably assuming the form of multiple, localized lesions, often on the body, with a tendency to spontaneous recovery. Microsporosis due to *Microsporum canis* [No. 982] is rare in proportion to the incidence of trichophytosis (about 1 in 20 cases), while the latter in its turn is less widespread than favus (1 in 5), the principal species involved being *T. glabrum* (998 out of 1,721) and *T. violaceum* (651) [loc. cit.].

2499. Pereiro Miguens (M.). **Nota previa al estudio de las micosis superficiales de Galicia.** [Preliminary contribution to the study of the superficial mycoses of Galicia.]—*Med. colon.*, *Madr.*, 19, 3, pp. 243–262, 4 maps, 1952. [English summary.]

A tabulated account is given of a study conducted in 1951 on 145 cases of superficial mycosis from Galicia, Spain, 12 from Madrid [cf. Nos. 2168–9], three from Spanish Morocco, four from Puerto Rico, and one from Cuba. The predominant complaint was favus of the scalp (*Trichophyton schoenleini*), which was isolated from 27 of the Galician cases (18·5 per cent.), followed by tinea capitis (*Microsporum canis*), the agent in 25 (17·2); most of the other infections were caused by *T. epilans* [*T. tonsurans*] and *T. sabouraudi*. *T. violaceum* was encountered only four times in the province, though it constituted the bulk of the Madrid material.

There were three cases of combined infection, viz., *T. schoenleini* and *T.*

mentagrophytes in favus of the scalp, a *T.* sp. of the *crateriforme* group [? *T. tonsurans*] and *T. violaceum* in tinea capitis, and *M. canis* and *T. mentagrophytes* in a kerion involving the back of the hand.

Two of the Moroccan samples yielded *T. schoenleini* and one of those from Puerto Rico *T. rubrum*.

2500. Mancy (E. S.). **Superficial fungous infection in Victoria.**—*Med. J. Aust.*, 39, (i), 26, pp. 883–884, 1952.

Microscopic examination and culture were carried out at the Alfred Hospital, Melbourne, on a series of 213 cases of suspected dermatophytosis, 93 of which gave negative results. Cultural methods did not increase the proportion of proved cases of fungal infection, but they indicated the great preponderance of *Microsporum lanosum* [*M. canis*] over *M. audouini* as an agent of tinea capitis in children and its presence in domestic animals, and the occurrence of some refractory cases associated with the latter species and of the non-fluorescing type due to *Trichophyton sulphureum*. Cultural methods further revealed the different species concerned in the etiology of tinea pedis, eight of the 38 cultures obtained being assigned to *Epidermophyton floccosum*, 23 to the *T. gypseum* [*T. mentagrophytes*] group, and seven to that of *T. purpureum* [*T. rubrum*]. *M. canis* developed in six out of seven cultures from glabrous skin lesions and *T. faviforme* in the remaining one. One case each of tinea barbae and onychomycosis yielded *T. rubrum* [No. 1960].

2501. Marples (M. J.). **The incidence of certain skin diseases in Western Samoa : preliminary survey.**—*Trans. R. Soc. trop. Med. Hyg.*, 44, 3, pp. 319–332, 1 graph, 1950. [Received May, 1952.]

Of 1,346 children examined for the presence of skin diseases in Western Samoa during the summer of 1948–9, 12·3 per cent. were found to be suffering from tinea versicolor [*Malassezia furfur*] and 6 per cent. from types of ringworm (*Trichophyton* spp.).

2502. Pipkin (J. L.). **Tinea capitis in the adult and adolescent.**—*Arch. Derm. Syph., Chicago*, 66, 1, pp. 9–40, 3 figs., 2 diags., 1 map, 1952.

A series of 57 cases of tinea capitis encountered after puberty (39 in adults) is reported from San Antonio, Texas, and analysed in relation to incidence, age, sex, duration, course, and influence of hormonal therapy on the last-named factor. A geographical survey corroborates the author's experience that the complaint is relatively frequent in post-pubertal patients, at any rate in some parts of the United States. In the San Antonio area, 5 per cent. of all microscopically diagnosed cases over the past 20 years occurred in persons beyond the age of puberty, this high incidence being probably attributable to the existence of long-standing endemic foci of the endothrix *Trichophyton* group in Texas and Mexico. In the present series, this group accounted for 46 (82 per cent.) of the post-pubertal infections. The *T. tonsurans* species group was responsible for 42 (91 per cent.) of the endothrix and 87 per cent. of the total of *Trichophyton* infections, and for 73 per cent. of all cases. It produced a variety of bizarre pictures, frequently quite atypical of tinea capitis and simulating other chronic diseases of the scalp. Concomitant glabrous skin lesions and onychomycosis were encountered in a number of cases. Wood's light was not a reliable diagnostic adjunct in the *T. tonsurans* species group of infections.

The microsporoses, caused in one patient by *Microsporum audouini* and in eight cases by *M. lanosum* [*M. canis*], presented no therapeutic problems, responding in the usual way to local treatment. Topical applications were, however, generally unavailing in the *T. tonsurans* infections unless inflam-

matory reactions were present, and the method of choice for this group is roentgen epilation (390 to 410 r to five points), followed by diligent manual removal of the stubs, dots, and fragments of hair over protracted periods.

This paper, presented at the 71st Annual Meeting of the American Dermatological Association, Hot Springs, Virginia, 23rd to 26th May, 1951, was followed by a discussion.

2503. Benedek (T.). **On the nature of the so-called 'macroconidia' observed on Microsporum infected hairs 'in vivo'.**—*Mycopathologia*, 6, 2, pp. 108–115, 15 figs., 1951.

After discussing the reported discovery of true macroconidia grown *in vivo* on *Microsporum*-infected hairs [Nos. 1467, 1987, 2189], the author adduces evidence to show that these so-called macroconidia are animal cells; the cells described as macroconidia in the parasitic stage of the genus *Microsporum* are typical cells of Henle's layer of the internal root sheath of the hair. Whether these 'macroconidia' can be seen or not depends entirely on the mode of epilation. The cells of Henle's layer can readily be distinguished from true macroconidia by their refractivity, staining properties, and measurements; moreover, they have no connexion with any mycelial elements.

2504. Sharp (H.). **Tinea tonsurans : a summary of the treatment of one hundred and twenty cases.**—*Aust. J. Derm.*, 1, 2, pp. 138–141, 1951.

Of 120 cases (62·5 per cent. in boys) of tinea tonsurans (*Microsporum lanosum*) [*M. canis*] treated at the Royal Alexandra Hospital for Children, Sydney [see next entry], from 1948 to 1950, inclusive, 78·3 per cent. were cured within four months and 87·2 in five by the routine procedure of shaving the hair twice weekly covering with a linen cap at all times, and washing the head twice daily with warm water and soap, followed by the application of Whitfield's ointment at half-strength for the first month and at full strength thereafter. Wood's light was used for diagnosis, monthly observation of progress, and determination of recovery.

2505. Havyatt (M.). **Use of a 12-volt ultra-violet bulb for the diagnosis of ringworm infections of the scalp.**—*Med. J. Aust.*, 38, (ii), 4, pp. 115–116, 1 fig., 1951.

The author has found a useful substitute for the apparatus at present available in Australia for the fluoroscopic examination of tinea capitis in the form of an inexpensive, easily handled, 12-volt ultra-violet bulb, the power source of which is a transformer. *Microsporum canis* infections examined by this bulb show the characteristic greenish fluorescence produced by ultra-violet light filtered through Wood's glass, in contrast to the dull-whitish of endothrix *Trichophyton* infections. Cultural studies have shown that *M. canis* is responsible for the great majority (over 90 per cent. in the author's series) of cases of tinea capitis in Sydney [see preceding entry].

2506. Melton (F. M.). **The effect of various substances on the oxygen uptake of Microsporum canis grown in submerged culture.**—*J. invest. Derm.*, 17, 1, pp. 27–35, 5 graphs, 1951.

At the Dakota Clinic, Fargo, North Dakota, the effect of various chemical compounds on the oxygen uptake of *Microsporum canis* in mycelial shake cultures was studied by the Warburg micro-respirometer technique. In the presence of 0·1 and 0·4 mg. sodium cyanide the oxygen uptake of five- to seven-day-old cultures was inhibited to the extent of 65 and 75 per cent., respectively, the corresponding figure for 0·4 mg. in 14-day-old cultures being 34 per cent. Hence it is concluded that the main path of oxidation in *M. canis* is through

the cytochrome oxidase system. Respiration was also inhibited 96 per cent. in six- to eight-day-old cultures by 2 mg. undecylenic acid and 32 per cent. by 4 mg. propionic acid, 46 per cent. in six-day-old cultures by 0·4 mg. disodium ethylene bisdithiocarbamate, and 67 per cent. in five-day-old cultures by 2 mg. para-amino-salicylic acid. On the other hand, the oxygen uptake of the fungus was stimulated by 2,4-dinitrophenol, oleic acid, sodium salicylate, and dextrose. The respiratory quotient of young (four- to seven-day-old) cultures of *M. canis* was 1 and that of older ones (11 to 15 days) following three days' starvation 0·87, indicating the utilization of other substances after depletion of the carbohydrate source.

2507. Snyder (W.). **Asterol dihydrochloride therapy of Microsporum audouini scalp infections.**—*Arch. Derm. Syph., Chicago*, 65, 4, pp. 464–465, 1952.

Of 94 patients at the Department of Dermatology, University of Cincinnati College of Medicine, treated for tinea capitis (*Microsporum audouini*) with 5 per cent. asterol dihydrochloride ointment [Nos. 2219, 2530], 60 aged from two to 12 years, 31 white and 29 negro, were followed for a year in detail, of whom 15 (25 per cent.) were cured, and 21 (35) improved, while the condition of 24 remained unchanged. In only three of the 15 patients developing temporary scalp irritation did this inflammatory reaction possibly contribute to the beneficial results of the treatment.

2508. Edelson (E.) & Haskin (A. H.). **Treatment of superficial mycological infections with a new antifungal agent.**—*Arch. Derm. Syph., Chicago*, 66, 2, pp. 244–250, 1952.

At the Newark (New Jersey) Board of Health Clinics, 61 patients (46 boys and 15 girls) aged from three to 12 years were treated for tinea capitis (*Microsporum audouini*) with asterol dihydrochloride [No. 2507]. On the basis of six weekly negative Wood light examinations, 42 (68·9 per cent.) were cured, 12 (19·7) improved, and seven (11·5) did not benefit. The treatment was also applied to 53 patients with a clinical diagnosis of moniliasis and cultures yielding *Candida albicans*, of whom 36 (67·9 per cent.) were cured, eight (15·1) improved, and nine (17) failed to respond. Finally eight out of 11 persons suffering from tinea versicolor [*Malassezia furfur*] were cured by asterol dihydrochloride therapy and the remaining three improved.

2509. Walby (A. L.). **Tinea capitis (M. audouini) in a residential school.**—*Brit. med. J., 1952*, 4768, pp. 1114–1115, 1952.

An outbreak of tinea capitis (*Microsporum audouini*) affecting over 30 per cent. of about 350 children aged one to 15 years in a Belfast (Northern Ireland) residential school is described [No. 2178]. The most susceptible age appeared to be about three years, and girls were almost as frequently infected as boys (30·2 and 32·8 per cent., respectively). Treatment consisted in the wearing of close-fitting caps, total or local X-ray epilation (in 86 and 12 cases, respectively), and manual epilation in 18. Whitfield's ointment was applied to all the patients to prevent the spread of infection. *Trichophyton sulphureum* was isolated from one case only, which is excluded from the analyses.

2510. Kligman (A. M.). **The pathogenesis of tinea capitis due to Microsporum audouini and M. canis. I. Gross observations following the inoculation of humans.**—*J. invest. Derm.*, 18, 3, pp. 231–246, 1952.

Methods for the inoculation of the human scalp with *Microsporum audouini* and *M. canis* are described. Some form of minor trauma was found to be a prerequisite for infection. In a study at the University of Pennsylvania School of Medicine, of 31 children and 18 adults inoculated with the former

species, 19 (61 per cent.) and 8 (44), respectively, contracted infection, the corresponding figures for 22 children and 15 adults inoculated with the latter being 12 (64) and 9 (60), respectively. The normal course of experimental tinea capitis falls into four phases, covering periods of (1) incubation, (2) enlargement and spread, (3) a refractory state, and (4) involution. Either of the two distinct types of infection comprised in tinea capitis may exist alone, but usually both are associated in the early stage of the complaint. Some of the epidemiological and therapeutic implications of the experimental data are discussed.

2511. La Touche (C. J.). **The Leeds campaign against microsporosis in children and domestic animals.**—*Vet. Rec.*, 64, 27, pp. 398–399, 4 figs., 1952.

Since January, 1950, a campaign has been in progress at Leeds to eliminate, as far as practicable, the animal reservoir of infection for microsporosis (*Microsporum canis*) [No. 1971] by the segregation of cats and dogs attacked by the fungus, which is the predominant agent of juvenile ringworm in the area. Most of the cats and kittens examined presented no obvious lesions, the presence of which was detected only with the aid of a Wood's lamp.

2512. De Almeida (F.), Da Silva (A. C.), Brandão (C. H.), Monteiro (E. L.), & Moura (R. de A.). **Saprofitismo de Microsporum canis em Gatos.** [Saprophytism of *Microsporum canis* in Cats.]—*Rev. Inst. Lutz*, 10, pp. 49–52, 2 figs., 1950. [Abs. in *Excerpta med., Amst.*, Sect. IV, 5, 5, p. 505, 1952.]

At the Instituto Adolfo Lutz, São Paulo, Brazil, *Microsporum canis* was found to be capable of leading a saprophytic existence in the fur of healthy cats, which may, however, develop typical symptoms of infection when put on a diet of purified food. On the resumption of normal feeding habits the lesions disappear completely. The animals harbour spores of the fungus and may therefore act as carriers.

2513. Coutelen (F.), Cochet (G.), Biguet (J.), & Mullet (S.). **Pluralité des dermatophytes isolés des épidermycoses inguinales et diversité clinique des lésions déterminées par Epidermophyton floccosum (Harz, 1870). (Note critique à propos de deux épidémies d'eczéma marginé de Hébra observées en milieu scolaire.)** [The plurality of the dermatophytes isolated from inguinal epidermomycoses and the clinical diversity of the lesions caused by *Epidermophyton floccosum* (Harz, 1870). (Critical note on two epidemics of Hébra's marginate eczema observed in a scholastic environment.)]—*Ann. Parasit. hum. comp.*, 27, 1–3, pp. 357–372, 1952.

After a critical review of the dermatophytes isolated from inguinal epidermophytic infections the authors give details of two epidemics of Hébra's marginate eczema of the groin caused by *Epidermophyton floccosum*, involving, respectively, 24 students in a college at Charleville in 1949 and 19 in one at Lille in 1951. A striking feature of both outbreaks was the polymorphism of the lesions. A three-page bibliography is appended.

2514. Muskatblit (E.), & Fisher (Dorothy). **Inflammatory ringworm due to Trichophyton faviforme. Report of two cases.**—*Arch. Derm. Syph., Chicago*, 65, 6, pp. 723–727, 3 figs., 1952.

Trichophyton faviforme is stated to be of rare occurrence in the United States [No. 1474]. In 1950 the authors, with the technical assistance of F[rances] E. Karpluk, investigated two cases in Staten Island, New York, one in a 30-year-old woman and the other in her seven-year-old daughter. The former presented a clinical picture of acute tinea circinata and the fungus was actually cultured from the latter on Sabouraud's agar. Infection was presumed to

have been contracted from calf. The mother responded rapidly to topical therapy, but the child required three months' treatment, comprising manual epilation, wet dressings with dilute Burow's (aluminium acetate) solution, and the application of an undecylenic acid ointment.

2515. Jillson (O. F.) & Buckley (W. R.). **Fungous disease in Man acquired from Cattle and Horses (due to Trichophyton faviforme).**—*New Engl. J. Med.*, 246, 26, pp. 996–999, 8 figs., 1952.

Four clinical types of fungal disease are transmitted from cattle and horses to man in New Hampshire and Vermont, namely, ringworm-like patches, agminate folliculitis (grouped follicular pustules), kerion, and granuloma of Majocchi (nodules with a normal overlying epidermis, characterized by marked chronicity). Trauma is usually the precipitating factor. Allergic manifestations include an ephemeral papular dermatophytid and a positive tuberculin-type trichophytin skin test, associated with systemic symptoms.

The common agent of the complaint is *Trichophyton faviforme* [*T. verrucosum*; Nos. 1270, 2514]. The diagnostic chains of enlarged chlamydospores can be demonstrated in less than a week, arising from hairs cultured on Sabouraud's agar at room temperature. The detection of the fungus in scales is difficult. Owing to the marked local allergic response, infection by *T. verrucosum* is usually self-limited in four to eight weeks, but in obstinate cases iodides taken internally and repeated injections of trichophytin are helpful in stimulating this reaction.

2516. Axenbeck (W.). **Zur Behandlung der Epidermophytien und Onychomycosen mit Mykotox.** [On the treatment of epidermophytoses and onychomycoses with mycotox.]—*Z. Haut- u. GeschlKrankh.*, 12, 11, pp. 456–459, 1952.

The principal agent of dermatophytosis of the hands and feet in the Munich district of Germany is stated to be *Epidermophyton* [*Trichophyton*] *interdigitale*. Mycotox liquid or paste (G. A. Brenner, Alpersbach, Schwarzwald), applied thrice daily, gave very promising results in 21 cases involving the interdigital spaces (17 of the squamous-vesicular type) and eight of onychomycosis. The symptoms abated in the course of five to six weeks and there were no recurrences over periods of up to seven months.

2517. Schäber (E. F.). **Über die Behandlung von Epidermophytia pedum mit Orthovanillin.** [On the treatment of epidermophytia pedum with orthovanillin.]—*Z. Haut- u. GeschlKrankh.*, 12, 7, pp. 302–304, 1952.

Since 1940 the author has obtained highly encouraging results in the treatment of tinea pedis (*Epidermophyton* Kaufmann-Wolf = *Ctenomyces interdigitalis*) [*Trichophyton interdigitale*] at Mannheim, Germany, by daily topical applications of a 3 to 5 per cent. orthovanillin paste with the addition of 1 to 5 per cent. nekal bx dry or 1 to 10 per cent. nekal bx extra (Badische Anilin- & Sodafabrik) to reduce the surface tension and enhance the absorptive capacity of the epidermis. Daily injections of penicillin to a total of 1 to 1·2 mega units are given to eliminate pyogenic superinfections.

2518. Booth (B. H.). **Mouse ringworm.**—*Arch. Derm. Syph., Chicago*, 66, 1, pp. 65–69, 2 figs., 1952.

The literature on cutaneous fungal infections of mice with transmission to man is reviewed, and an epizoötic of tinea in white mice, caused by *Trichophyton mentagrophytes*, is reported from Indianapolis, Indiana. Infection was communicated to a 24-year-old female laboratory technician in the form of an eruption on both hands which was cured within three weeks by the application of potassium permanganate compresses and a salicylic acid ointment.

2519. Grimmer (H.) & Rust (S.). **Tierexperimentelle Untersuchungen über die Wirkung von Vitamin K auf die tiefe Trichophytie des Meerschweinchens.** [Animal-experimental studies on the action of vitamin K on deep trichophytosis of the Guinea-pig.]—*Z. Haut- u. GeschlKrankh.*, 12, 3, pp. 102–106, 1 fig., 1 graph, 1952.

At the Rudolf Virchow Hospital, Berlin, 19 guinea-pigs received (1) daily intrafocal injections of 0·2 to 0·3 ml. vitamin K (synka-vit) [Nos. 1999, 2024] from the day of inoculation with a virulent strain of *Trichophyton gypseum asteroides* [*T. mentagrophytes*] until the fourth day after the climax of the inflammation, (2) nine were rubbed daily with the preparation, and (3) 14 were left untreated after inoculation. The course of the trichophytosis in the three groups extended over 19, 17, and 23 days, respectively.

2520. Korting (G. W.) & Miowski (D. K.). **On the fungistatic features of histamine on pathogenic fungi.**—*Acta med. iugoslav.*, 5, 1–2, pp. 123–127, 1 fig., 1951. [Serbo-Croatian summary.]

At the Medical Faculty, Skopje, Yugoslavia, concentrations of histamine dichloride ranging from 10^{-1} to 10^{-9} were tested *in vitro* for their antagonism to cultures of *Trichophyton gypseum* [*T. mentagrophytes*] on Sabouraud's agar. The fungistatic effect was most pronounced at 10^{-1}, but a considerable measure of inhibition was also secured by the use of concentrations between 10^{-2} and 10^{-4}.

2520a. Lesser (M. A.). **Newer fungicidal products.**—*Drug & Cosmet. Ind.*, 69, 4, pp. 468–469, 545–552, 1951.

From the relevant literature, listed in a bibliography of 62 titles, the author presents a number of up-to-date formulations for the therapy of tinea pedis, caused mostly by *Trichophyton purpureum* [*T. rubrum*] and *T. gypseum* [*T. mentagrophytes*] in the United States, where the complaint is said to affect 50 to 70 per cent. of the male population.

2521. Györkö (A. C.). **Estudio clínico y tratamiento del favus en Gran Canaria.** [Clinical study and treatment of favus on Grand Canary.]—*Med. colon., Madr.*, 19, 2, pp. 125–137, 1952.

Information is presented on the various clinical forms of favus (*Achorion* [*Trichophyton*] *schoenleini*) occurring on Grand Canary, Canary Islands, and their treatment.

2522. Eyckmans (R.) & Vanbreuseghem (R.). **Épidémie familiale de favus sans godets.** [Family epidemic of atypical favus.]—*Arch. belges Derm.*, 7, 4, pp. 320–329, 2 figs., 1952.

A description is given of a case of atypical favus affecting six members of a family, a strain of *Trichophyton schoen leini* morphologically resembling *T. milochevitchi* being isolated from the hair of each patient.

2523. Howell (J. B.), Wilson (J. W.), & Caro (M. R.). **Tinea capitis caused by Trichophyton tonsurans (sulfureum or crateriforme).**—*Arch. Derm. Syph., Chicago*, 65, 2, pp. 194–205, 8 figs., 1952.

This is a preliminary study on the form of tinea capitis caused by *Trichophyton tonsurans*, based on the observation during the past three to four years in Texas and California of 37 cases in children and seven in adults, supplemented by information gathered from the pertinent literature. From a consideration of the available evidence it seems reasonable to predict the advent of an epidemic invasion, originating in Mexico and entering the United States by way of the border States. The fungus produces a 'black dot' type of tinea, similar to that associated with *T. violaceum*; kerion formation is

common. The patches are often of a distinctive angular, irregular, polygonal form, but in mild cases they may be mistaken for seborrhoeic dermatitis. Fluorescence is usually lacking, so that filtered ultra-violet irradiation is not applicable as a diagnostic criterion. Two cases closely simulating discoid lupus erythematosus in adults are described, emphasizing the histopathological features of value in differentiation.

2524. Luger (A.). **Eisen in der Mycosetherapie.** [Iron in the therapy of mycosis.] —*Wien. med. Wschr.*, 10, 21, pp. 386–389, 3 figs., 1951.

At the dermatological clinic of the University of Vienna a powerful anti-mycotic action was exerted in *in vitro* experiments with *Trichophyton griseiforme* and *Candida albicans* by a combination of ferrithioformiate+sulphate of ammonia+*p*-oxybenzoic acid in alcoholic solution. Clinical tests with the compound on 31 patients suffering from various dermatomycoses resulted in 10 cures and 17 improvements.

2525. Madsen (E.). **Undersøgelser af nogle praeparater til behandling af fodsvamp.** [Studies on some preparations for treatment of tinea pedis.]—*Dansk. Tidsskr. Farm.*, 25, 10, pp. 329–349, 1951. [*B.A.*, 26, No. 12593.]

When 20 preparations for use against tinea pedis [see next entries] were tested, powders and ointments were less effective than liquids. Of the liquids, those containing, respectively, 5 per cent. undecylenic acid, 0·2 per cent. phenyl mercuric acetate, or 0·5 per cent. chlorothymol displayed an excellent fungistatic and fungicidal effect on *Epidermophyton* [*Trichophyton*] *interdigitale*, *Achorion* [*Microsporum*] *gypseum*, *T.* (*gypseum*) *asteroides* [*T. mentagrophytes*], and *M. lanosum* [*M. canis*].

2526. Marcussen (P. V.). **Effektiviteten af antimycotisk behandling av fodsvamp.** [Efficacy of anti-mycotic treatment of the foot fungus.]—*Ugeskr. Læg.*, 113, 20, pp. 633–638, 1951.

The results of the anti-mycotic treatment of tinea pedis (mostly using mycocten) in 537 patients (324 male, 213 female) at the Communal Hospital, Copenhagen [see next entry], from 1945 to 1948 are analysed and fully discussed. Judging by freedom from relapses during an observation period of $1\frac{1}{2}$ to $4\frac{1}{2}$ years, self-treatment resulted in only 43·4 per cent. of cures as compared with 75·4 to 84·9 per cent. for daily visits to the hospital and weekly mycological controls, mostly for three to six weeks. The complaint is on the increase in the city, where the dermatological clinics treated a total of 982 patients in 1948 as against 219 in 1933.

2527. Boas (H.). **Behandling af eczema mycoticum a. m. Sylvest.** [Treatment of mycotic eczema by Sylvest's method.]—*Ugeskr. Læg.*, 113, 20, pp. 639–640, 1951.

Out of 157 hospital and private patients in Copenhagen treated for tinea pedis [see preceding entry] by Sylvest's method (*Ugeskr. Læg.*, p. 423, 1944), 144 were clinically cured. The procedure consists essentially in the nightly immersion of the feet (after washing) in a tepid bath of 1 per cent. mercuric chloride solution, followed by drying in the air. In most cases recovery ensued within a few weeks, the maximum period required being $2\frac{1}{4}$ months.

2528. Pickert (K.). **Über Erfahrungen der Behandlung von Hautpilzerkrankungen mit Mykotin.** [On experiences in the treatment of dermatomycoses with mycotin.]—*Z. Haut.- u. GeschlKrankh.*, 13, 1, pp. 19–20, 1952.

Since 1947 the author has observed an increase in the incidence of [unspecified] dermatomycoses in the Bonn district of Germany. Among his patients are 300 whose occupations necessitate constant use of the feet, and of these

32 (10 per cent.) have contracted infection of recent years. In 26 cases the feet only were involved, in four the hands were also affected, and in one the hands alone. All the patients were treated thrice daily with mycotin, an undecylenic acid-containing preparation supplied in paste or liquid form by Frankfurter Arzneimittelfabrik GmbH., Frankfurt-am-Main. In 20 cases a cure was rapidly effected without absence from work, 11 improved in a relatively short time, and only in one person with severe involvement of the finger nails, necessitating a preliminary onycholysis with thioglycollic acid [No. 1961], was a period of four months requisite to secure complete freedom from infection.

2529. Ranque (J.) & Le Henaff (G.). **Étude du pouvoir inhibiteur de quelques antiseptiques vis-à-vis des dermatophytes et des germes de souillure qui peuvent se développer au cours de leur culture.** [Study on the inhibitory capacity of some antiseptics towards dermatophytes and contaminants liable to develop in the course of their culture.]—*C. R. Soc. Biol., Paris*, 145, 21–22, pp. 1702–1704, 1951.

Details are given of experiments to determine the toxicity to *Sabouraudites* [*Microsporum*] *audouini*, *Trichophyton violaceum*, and *T. schoenleini* of formalin, neutral oxyquinoline sulphate, and ethylmercurithiosalicylic acid, and the possibility of eliminating bacterial and fungal contaminants from cultures of these organisms by their agency. The last-named compound was toxic to *M. audouini* and *T. violaceum* at 1 in 240,000, but not to *T. schoenleini*, and it was the only one of the chemicals to give any promise in the removal of contaminants.

2530. Ravits (H.). **Treatment of superficial dermatomycoses with asterol dihydrochloride.**—*J. Amer. med. Ass.*, 148, 12, pp. 1005–1007, 1952.

The author describes and tabulates the results of treatment of superficial dermatomycoses in 100 patients, some from the Ancker Hospital and others from private practice at St. Paul, Minnesota, with asterol dihydrochloride [Nos. 2344–5, 2507] in three forms, viz., (1) a 5 per cent. ointment in a polythylene glycol (carbowax) base, (2) a 5 per cent. dusting powder, and (3) a 5 per cent. tincture containing 70 per cent. alcohol. Complete and partial cures were affected in 54 and 34 cases, respectively (many of long standing), while the remaining 12 showed no improvement. Among the complaints responding most favourably to the treatment were tinea pedis (*Trichophyton gypseum* [*T. mentagrophytes*], *T. purpureum* [*T. rubrum*], and *Candida albicans*), tinea cruris (*C. albicans*, *Epidermophyton inguinale* [*E. floccosum*], and *T. mentagrophytes*) and tinea corporis (*Microsporum lanosum*) [*M. canis*], and tinea capitis (*M. canis* and *M. audouini*).

2531. Richou (L.). **Étude sur les teignes des carnivores.** [Study on ringworm of carnivores.]—141 pp. Thèse, École Nationale Vétérinaire d'Alfort, 1950.

After summarizing the general characteristics of the dermatophytes and the techniques for their study, ringworm in dogs and cats is discursively reviewed. Ringworm in dogs is attributed to *Sabouraudites* [*Microsporum*] *canis*, *Trichophyton caninum*, *Ctenomyces* [*T.*] *mentagrophytes*, and *Achorion caninum*; that in cats to *M. canis*, *C.* [*T.*] *radians*, and *S. quinckeanus* [*T. quinckeanum*]. Notes are given on one case of ringworm in a Persian kitten (and man) and two cases in dogs, but the causal fungi are not identified.

2532. Raubitschek (F.). **The use of blood agar for the primary isolation of dermatophytes.**—*Mycopathologia*, 6, 1, pp. 15–18, 1951. [English summary.]

The use of blood agar as an additional medium for the primary culture of fungi from tinea circinata lesions increased the yield of positive results at the Rothschild Hadassah University Hospital, Jerusalem. Early distinctive

features of *T*[*richophyton*] *gypseum* [*T. mentagrophytes*] and *T. rubrum* in hanging drop cultures are described.

2533. Taschdjian (Claire). **A calorimetric assay of dermatophyte growth in broth culture.**—*J. invest. Derm.*, 18, 5, pp. 369–372, 3 graphs, 1952.

Having accidentally observed that Sabouraud's liquid medium on which dermatophytes were growing developed a brown coloration on autoclaving, the writer studied at the Department of Medicine, University of Chicago, the relationship between colony size and depth of coloration of the medium after autoclaving in *Trichophyton gypseum* [*T. mentagrophytes*], *T. rubrum*, *Epidermophyton inguinale* [*E. floccosum*], and *Microsporum audouini*. The optical density of the coloration was found to be proportional to the weight of the cultures up to about 30 mg. It appears that the darkening of glucose in the presence of ammonia under the influence of heat and pressure, which accounts for the coloration, is primarily due to the shift of the pH in the alkaline direction.

The effect of graded concentrations of asterol dihydrochloride [No. 2530] and pelargonic acid [No. 1506] on the dry weight and colour reaction of the four species was demonstrated.

2534. Belcher (P. D.). **'Whitfield's ointment'. A suggested modification.**—*Aust. J. Pharm.*, 31, (379A), pp. 836–837, 1951. [*B.A.*, 26, No. 12578.]

The author recommends dissolving benzoic and salicylic acids in castor oil and incorporating the solution in an ointment base to give a particle-free preparation retaining its ointment consistency under Australian climatic conditions.

2535. Bustinza (F.). **Contribución al estudio de las propiedades antibacterianas y antifúngicas del ácido úsnico y de algunos de sus derivados.** [Contribution to the study of the anti-bacterial and anti-fungal properties of usnic acid and some of its derivatives.]—*An. Jard. bot. Madr.*, 10, pp. 151–175, 12 figs., 1951. [English summary.]

Particulars are given of *in vitro* experiments which demonstrated the toxicity of usnic acid to a number of micro-organisms, including *Candida albicans* and *Trichophyton mentagrophytes*, and of usnimycin (the name proposed for the precipitate formed when an aqueous solution of sodium usnate is added to one of a streptomycin salt, e.g., the hydrochloride) to the latter fungus and various bacteria.

2536. Gordon (M. A.). **Rapid permanent staining and mounting of skin scrapings and hair.**—*Arch. Derm. Syph., Chicago*, 63, 3, pp. 343–346, 3 figs., 1951.

A method, with several modifications suitable for different purposes, is described for the staining of hairs and skin scrapings [No. 1499]. It involves the application to the material for 30 seconds to one minute of one to two drops of one part of a saturated 95 per cent. alcoholic solution of methylene blue hydrochloride in nine parts of distilled water, decoloration with distilled water, supplemented if necessary by 1 per cent. acetic acid, dehydration with one or two drops of 1,4-dioxane, and mounting in a synthetic resin.

2537. Silva (Margarita) & Benham (Rhoda W.). **Nutritional studies of the dermatophytes with special reference to Trichophyton megnini Blanchard 1896 and Trichophyton gallinae (Megnin 1881) comb. nov.**—*J. invest. Derm.*, 18, 6, pp. 453–472, 5 figs., 1 graph, 1952.

In a comparative study at the Department of Dermatology, Columbia-Presbyterian Medical Center, New York, on the nutritional requirements of four species of *Trichophyton*, the fact already reported that *T. rubrum* and *T.*

mentagrophytes are autotrophic for the known vitamins (*Plant Physiol.*, 11, p. 795, 1936; *Bull. Torrey bot. Cl.*, 70, p. 372, 1943) [No. 580] was confirmed and found also to apply to *T. megnini* and *T. gallinae*. It was further demonstrated that the addition of vitamins did not modify the ability of any of the four species to utilize the various nitrogen sources, nor did it change their growth rates. *T. rubrum*, *T. mentagrophytes*, and *T. gallinae* can synthesize proteins from inorganic nitrogen, but *T. megnini* requires histidine for this purpose.

Additional evidence of the importance of the nitrogen source in pigment production by these dermatophytes has been secured (*Arch. Derm. Syph., Chicago*, 44, pp. 453–460, 1941) [No. 1491]. In the case of *T. gallinae* the presence and concentration of lysine seem to determine the amount and intensity of the pigment produced.

Reasons are adduced from the relevant literature and the authors' studies for the specific separation of *T. megnini* from *T. gallinae*, the former being regarded as the valid name. A new combination, *T. gallinae*, is proposed for *Epidermophyton gallinae* Megnin, 1881, and a list of synonyms, including *Achorion gallinae* Sabouraud, 1910 [No. 1058], *Microsporum* (*Closteraleurosporia*) *gallinae* Grigorakis, 1929 [No. 1264], and *Sabouraudites gallinae* Langeron and Milochevitch, 1930 is given.

2538. Drouhet (E.) & Mariat (F.). **Recherches sur la nutrition des dermatophytes. I. Étude des besoins vitaminiques.** [Researches on the nutrition of the dermatophytes. I. Study of vitamin requirements.]—*Ann. Inst. Pasteur*, 82, 3, pp. 337–347, 1 fig., 1952.

Of 34 strains representing 17 species of dermatophytes grown on a synthetic medium with either inorganic or organic nitrogen, the former supplied in the form of nitrate or ammonium sulphate and the latter in that of asparagine, casein hydrolysate, or pure amino acids [see next entry], *Trichophyton acuminatum* [*T. sabouraudi*], *T. crateriforme* [*T. tonsurans*], *T. sulphureum*, *T. violaceum*, and *T. glabrum* were incapable of development without the pyrimidin fraction of thiamine. Supplied with the growth factor, these species produce typical fructifications on an amino acid medium. The development of *T. concentricum* is stimulated by the thiazole fraction of vitamin B_1. Organic (especially amino) nitrogen proved indispensable for satisfactory growth in the species under investigation.

2539. Drouhet (E.). **Recherches sur la nutrition des dermatophytes. II. Action des acides aminés sur la croissance et la morphogenèse.** [Researches on the nutrition of dermatophytes. II. Action of amino acids on growth and morphogenesis.]—*Ann. Inst. Pasteur*, 82, 3, pp. 348–355, 1952.

Trichophyton rosaceum was the only one of 12 species of dermatophytes studied to require a particular amino acid (histidin) for satisfactory growth [see preceding entry]; slight development occurred in the presence of lysine. The others were able to utilize any of the amino acids supplied, generally in the following order of preference: arginine and proline > glutamic acid > serine > glycocol > alanine > valine > leucine > phenylalanine > aspartic acid > tyrosine > histidine and isoleucine > threonine > norleucine. A mixture of amino acids promoted much more rapid growth than any single one.

2540. Meyer (J.), Sartory (R.), Malgras (J.), & Touillier (J.). **Sur la nature protéique des trichophytines et leur composition en amino-acides.** [On the proteic nature of the trichophytins and their amino acid composition.]—*C. R. Acad. Sci., Paris*, 234, 22, pp. 2224–2226, 1952.

The following conclusions are drawn from the authors' studies on the com-

position of trichophytins, using cultures of *Ctenomyces interdigitalis* [*Trichophyton interdigitale*], *Microsporum lanosum* [*M. canis*], *M. audouini*, *C.* [*T.*] *granulosum*, and *C.* [*T.*] *persicolor* on Schuermann's medium (À propos des cultures des dermatophytes. Préparation d'un milieu de choix synthétique.—Thèse Doct. Pharm., Strasbourg, 1950). The endotrichophytin (secreted by the mycelium) and the exotrichophytin (diffused into the medium) are not identical in a given species except for *M. audouini* and *T. persicolor*. All the trichophytins contain nine basic amino acids, viz., aspartic and glutamic acids, serine, glycocoll, threonine, alanine, lysine, arginine, and leucine, but in every case except that of the endotrichophytin of *M. canis* they are also accompanied by valine, proline, and tyrosine. The endotrichophytins of *T. interdigitale* and *T. granulosum* and the exotrichophytin of *M. canis* further secrete an unidentified amino acid. The most complex of the antigens examined seems to be the exotrichophytin of *M. canis*, containing 15 amino acids, of which two, phenylalanine and cystine, did not appear in any of the other hydrolysates.

2541. Vanbreuseghem (R.). **Nouvelle technique de détermination du pouvoir fungistatique à l'ègard des dermatophytes.** [New technique for determining fungistatic ability towards dermatophytes.]—*Arch. belges Derm.*, 6, 4, pp. 1–4, 1950.

When *Ctenomyces asteroides* [*Trichophyton mentagrophytes*], *Sabouraudites duboisi* [No. 1996], *S.* [*Microsporum*] *canis*, *C.* [*T.*] *persicolor*, and *Epidermophyton floccosum* were grown on single human hairs *in vitro* [No. 1764], water being used in the container, the hair was attacked or broken by the fungus in five to ten days, but when a 2 per cent. propylene phenoxetol-water emulsion was used instead of water the hair remained intact. When the hair was immersed in pure propylene phenoxetol or a 1 per cent. solution of it before the fungus was applied, the organism grew more slowly and attacked the hair after a longer period than when water was used. This method would appear to be suitable for testing the fungistatic ability of volatile substances.

2542. Vanbreuseghem (R.). **Keratin digestion by dermatophytes: a specific diagnostic method.**—*Mycologia*, 44, 2, pp. 176–182, 1 pl., 1952.

After describing the two processes by which dermatophytes attack and may rupture human or animal hair [No. 2541] the author states that the manner of growth of these fungi on hair *in vitro* differs markedly from that *in vivo*. In the first case the fungus has all the characters of a saprophyte, while in the latter it displays the morphology induced by parasitism. Experiments with numerous strains showed that the only species of the genus *Epidermophyton*, *E. floccosum*, and the only one of the genus *Langeronia*, *L. soudanensis* [No. 1997], are keratolytic, this ability appearing to be associated with the richness of each species in spores. It appears that every dermatophyte may attack the hair, and that dermatophytes are the only fungi that do so in the manner described. A study of this action renders possible a diagnosis of the dermatophytic nature of a fungus attacking hair.

2543. Vanbreuseghem (R.) & Van Brussel (M.). **Longévité et vitalité des dermatophytes cultivés sur milieux à base de terre.** [Longevity and viability of dermatophytes grown on media with a soil base.]—*Ann. Soc. belge Méd. trop.*, 32, 2, pp. 169–172, 1952. [Flemish summary.]

Strains of dermatophytes grown on a medium consisting of 20 gm. garden soil, 2 gm. agar, and tap water to make 100 ml. remained living and free from all pleomorphic alteration for at least five months in the laboratory.

2544. Vanbreuseghem (R.). **Technique biologique pour l'isolement des dermatophytes du sol.** [Biological technique for the isolation of dermatophytes from

the soil.]—*Ann. Soc. belge Méd. trop.*, 32, 2, pp. 173–178, 1 pl., 1952. [Flemish summary.]

The author describes a method of isolating dermatophytes from soil which consists essentially in placing fragments of hair 4 to 5 cm. long on the surface of the soil in Petri dishes and incubating at 25° C. for five days. If dermatophytes are present they will infect the hair and produce characteristic lesions. Infected hairs are placed on Sabouraud's medium with added penicillin and the organism isolated.

2545. Vanbreuseghem (R.) & Van Brussel (M.). **La terre, facteur de mutation d'un dermatophyte : Langeronia soudanensis (Joyeux, 1912), Vanbreuseghem, 1950.** [The soil, a factor of mutation in a dermatophyte: *Langeronia soudanensis* (Joyeux, 1912), Vanbreuseghem, 1950.]—*Ann. Soc. belg. Méd. trop.*, 22, 1, pp. 79–84, 1952. [Flemish summary.]

Strains of *Langeronia soudanensis* [No. 2542], cultured on Sabouraud's medium with the addition of 20 per cent. soil of a high humus content, give rise to a purple mutant differing in both macro- and microscopic morphology from normal isolates.

2546. Vanbreuseghem (R.). **Sur un nouveau dermatophyte isolé au Congo belge : Sabouraudites rivalieri n.sp.** [On a new dermatophyte isolated in the Belgian Congo: *Sabouraudites rivalieri* n.sp.]—*Arch. belges Derm.*, 7, 2, pp. 1–5, 1 fig., 1951.

From lesions on the scalp of a four-year-old native child in the province of Leopoldville, Belgian Congo, a fungus was isolated which in culture on the usual media developed no aleuria (microconidia) or fuseaux (macroconidia). However, when affected hairs were cultured *in vitro* [No. 2541], a few lanceolate, quinque- to sexseptate macroconidia developed; they were inserted on a long, thin pedicel and measured 80 to 100 by 16 to 18 μ, on frequently bisected, each part up to 150 μ long. On 2 per cent. glucose agar or in hanging drop culture in peptone broth the vegetative hyphae, after spreading in a straight line from the inoculation site towards the periphery, became bent; on the convexity of the arc thus formed excrescences developed, the largest near the middle, the smallest towards the extremities. Some of the excrescences enlarged into other arcs, which developed like the first. Sown on a hair *in vitro*, the fungus broke it in five to eight days. The author intends to name the fungus *Sabouraudites rivalieri*.

2547. Silva (M.). **Sporotrichosis in Colombia.**—*Arch. Derm. Syph., Chicago*, 65, 3, pp. 355–356, 1 fig., 1952.

Information on the mode of infection and symptomatology of sporotrichosis (*Sporotrichum schencki*) is summarized with reference to the prevalence of the disease in Colombia, where patients are seen almost every week at the University dermatological clinic and in private practice. Excellent therapeutic results have been obtained with intravenous injections of strong iodide solutions.

2548. Walstad (P. M.) & Gelenger (S. M.). **Sporotrichosis.**—*U.S. Forces med. J.*, 3, 5, pp. 747–750, 2 figs., 1952.

A case of sporotrichosis (*Sporotrichum schencki*) involving the right hand and arm of a 28-year-old soldier is reported from the U.S. Army Hospital, Camp Cooke, California. Infection originated in the fourth finger, possibly as a sequel to pricking with a pine needle or puncturing with a thorn. The oral administration of potassium iodide and the application to the lesions of dressings saturated with Lugol's solution produced a complete cure in eight weeks, and after six months there was no evidence of a recurrence.

INDEX OF AUTHORS

ABSTRACTS

Abalo, M. A. 347
Abbate, E. A. 912
Abbott, J. D. 2401
Aboulafia, R. 2373
Abrahams, I. 663, 1871
Abrams, W. W. 1945
Absher, W. K. 1418
Abshier, A. B. 986
Ackerman, L. V. 841
Adamson, C. A. 1087
Adamson, H. G. 1463
Adamson, J. B. 1542
Aguilera Maruri, C. 2368
Ainsworth, G. C. 883, 1058, 1557, 1558, 1954, 2090, 2225
Ajello, L. 436, 617, 1010, 2043, 2044, 2048, 2145, 2189, 2215, 2265, 2451, 2487
Akün, R. S. 1699
Albert, M. 279
Albert, W. B. 377
Albornoz, J. E. 1272
Albright, F. 340
Alden, H. S. 2177
Aleixo, H. B. 1057
Aleixo, J. 1130
Alexander, C. S. 74
Alexander, E. R. 2281, 2446
Alexander, H. 1856
Alfonso y Armenteros, J. 50
Alkiewicz, J. 1449, 2190
Allen, A. C. 1234
Allen, J. E. 1170
Allen, M. F. 740, 1162
Allen, R. 1422
Allen, S. E. 681, 1851
Allen, T. 471
Allen, V. K. 487
Alonso, G. 1891
Alonso, J. M. 314
Alpern, E. B. 2270
Altweg, J. 1484
Alvarez-de Choudens, J. A. . . . 1629, 2106
Alvarez Pueyo, J. 202
Alvarez Sainz de Aja, E. 1959
Ambrosioni, P. 877
Amlie, R. 1436
Amolsch, A. L. 9
Anders, W. 2180
Anderson, H. W. 2054
Anderson, N. A. 329
Anderson, P. 758
Anderson, W. A. D. 1295
Andleigh, H. 2099
André, L. 1626
Andy, O. J. 1374
Angulo, J. J. 113, 322
Ansari, N. 2206
Ansell, H. B. 1475
Apablaza, H. 1870
Appel, B. 1475, 2344
Applebaum, A. A. 137
Aranda Reyes, B. 1917
Arauz, S. L. 153
Arbesman, C. E. 1332
Arblaster, P. G. 2268
Archibald, R. M. 1810
Arden, F. 450
Arêa Leão, A. E., see Leão, A. E. de A.
Aretas, R. 1158
Argabrite, J. W. 1338

ABSTRACTS

Argüelles Casals, D 286
Arikan, O. 1931
Ariyevich, A. M. 789
Armas Cruz, R. 1080
Armstrong, J. W. 1409
Arnold, H. L. 1071
Arnold, J. G. 1634
Arnold, R. 212
Arnold, W. T. 726
Aroeira Neves, J. 1041
Artagaveytia-Allende, R. 328, 750, 1242, 1291, 1347, 1348, 1843, 1891
Artis, D. 746
Artman, E. L. 1118
Ascher, L. 276
Aschner, M. 701, 905
Ashburn, L. L. 30, 116, 513, 1195
Ashcar, H. 696, 1129, 1646
Ashe, B. I. 2288
Ashe, Rosemary 2235
Ashley, P. 1327
Askawazy, C. L. 2093
Asnin, D. I. 1592
Aspe, A. 1202
Asthana, R. P. 267
Attal, C. 2039
Atwood, H. S. 94
Aubert, J. P. 1872
Austin, Elizabeth 2175
Austin, E. R. 1071
Axenbeck, W. 2516
Axilrod, H. D. 761
Ayers, W. B. 195
Ayres, S. 47
Azulay, R. D. 496, 710

Babaïantz, L. 2144
Bablet, J. 48
Bacarini, I. 2350
Bachmann, A. E. 1206
Bader, D. W. 2083
Baer, R. L. 639, 1239, 1479
Báez, M. M. 172
Baggenstoss, A. 1319
Bahler, M. E. 2312
Baila, A. E. 253, 667
Bailly, C. 876
Baird, J. W. 2176
Baird, Katharine H. 2455
Baker, C. G. 1462
Baker, E. E. 112, 291, 1144
Baker, R. D. 49, 645, 1062, 1280
Balanabanoff, V. A. 1029
Baldacci, E. 1309
Baldridge, G. D. 2139, 2205
Baldwin, A. C. 1026
Baliña, I. M. 2261
Baliña, P. L. 81, 275, 313
Bamatter, F. 2144
Banerjee, B. N. 2383
Baquero, G. F. 2373
Barail, L. C. 1020, 1518
Barger, E. H. 430
Barkley, F. A. 2464, 2465, 2466
Barlow, A. J. E. 1984
Barnard, P. J. J. 906
Barnatán, M. 275
Barner, R. D. 1697
Barnes, R. O. 1586
Barnetson, J. 6,129

ABSTRACTS

Barnett, H. L. 315
Barrett, C. C. 1753
Barrie, H. J. 860, 2093
Barrock, J. J. 403
Barros, A. 209
Barsky, S. 2441
Bartels, H. A. 245, 765
Bartlett, A. G. 725
Bartůňková, Z. 1771
Basombrio, G. 81
Bass, H. E. . . 923, 1373, 1381, 1668
Basset, A. 1196
Bastos Daluz, J. 1744
Basu, C. C. 259, 2382
Bateman, J. K. 2397
Battelli, C. 689
Baugher, L. 1319
Baum, G. L. 2251
Bazil, A. 1249
Beadenkopf, W. G. . . . 1384, 2127
Beamer, P. R. 315, 448
Beard, R. R. . 719, 720, 1144, 1146, 1415
Beardsley, J. 1629
Beattie, G. F. 805
Beaudry, M. 493
Bechet. P. E. 339
Beck, E. C. 1238
Beck, E. M. . . . 702, 703, 1115
Beck, Oleth 2151
Beck, R. 1213
Becker, F. 861
Beckette, E. S. 2299
Bednář, B. 2065
Beene, Mary L. 2141, 2435
Beerman, H. 1514
Behling, R. T. 1471
Behre, J. H. 2178, 2179
Behrendt, H. 792
Behrman, H. T. . . . 385, 581, 583, 1245
Beinhauer, L. G. 605
Belber, J. P. 2121
Belcher, P. D. 2534
Bell, Emily 2149
Bell, J. A. 950, 1194
Bell, M. 1520
Bellrose, F. C. 691
Belou, A. P. 330
Benbow, E. P. 257
Benbrook, E. A. 1107
Bender, E. 1741
Bendove, R. A. 2288
Benedek, T. 69, 219, 220, 361, 363, 594, 652, 754, 1355, 1813, 2173, 2368, 2503
Benedetti, G. 753
Benedict, W. L. 437
Bengston, J. S. 927
Benham, Rhoda W. 1052, 1199, 1225, 1491, 1810, 2537
Bennett, J. G. 241
Bennett, S. C. J. 707
Benninghoven, C. D. 78
Benson, E. S. 1386
Benson, M. 307
Bereston, E. S. . . 476, 707, 1021, 1606
Berg, Margaret K. 2481
Berger, L. 492, 493, 1653
Bergman, P. S. 2109
Bergmann, F. 1103
Bergmann, H. W. 2016
Bergner, K. 165
Bergqvist, B. 1564
Berk, M. 2417
Berke, R. 1373, 1381

ABSTRACTS

Bernath, Z. v. 270
Bernhardt, E. . . 414, 597, 635, 979
Bernheim, F. 61
Bernstein, R. 102
Berrey, R. 1161
Bertrand, L. 2129
Besterbreutje, A. M. 1153
Bettley, F. R. 2170
Bezpalij, I. G. 2213
Bhat, J. V. 764
Bhattacharyya, P. K. 2054
Bianchi, A. E. 464
Biddle, Marjorie 1883, 1919
Bieberdorf, F. W. . . . 886, 1338, 2378
Biggs, R. 553
Bigham, A. 375
Biguet, J. 1294, 2513
Bill, A. H. 242
Billington, R. W. 260
Billiotet, J. 1626
Binford, C. H. . . . 283, 431, 2406
Bingham, C. T. 358
Biocca, E. 730
Birge, R. F. 748
Birsner, J. W. . . . 1388, 1390, 1888
Birt, A. R. 353
Bittersohl, G. 1774
Blackaller, A. 1600
Black-Schaffer, B. 495
Blair, D. 125
Blamoutier, P. 478
Blanc, G. 636
Blanco, M. C. 330
Blanco Solís, A. 136
Blank, F. 1973, 1974, 1975, 2006, 2217, 2356, 2371
Blank, I. H. 572
Blaxland, J. D. 2159
Blevins, A. 447, 873, 874
Block, W. M. 149
Bloedner, C. D. 2069
Bloom, H. J. 312
Blumer, S. 178
Blumstein, G. I. 682, 890
Boand, A. 1315
Boas, H. 2527
Boase, A. J. 8, 975
Bobroff, A. 1530
Bocobo, F. C. . . . 1491, 1496, 2437, 2494
Boeing, P. J. 718, 971
Bogliolo, L. 511, 729, 1128, 1644, 2258, 2259
Bograd, N. 390
Bohan, E. M. 664
Bohonos, N. 699, 1067
Bohrod, M. G. 1102
Bojalil, L. 2102, 2223
Bolaños, E. L. 409
Bolay, G. 2017
Bonestell, A. E. 298
Bonfigliolo, H. 589
Bongiovanni, A. M. 1200
Bonilla, M. A. 1874
Bonne, C. 897
Bonney, G. L. W. 1081
Booth, B. H. 1756, 2518
Boragina, R. C. 512
Borasi, M. 2429
Borgen, L. O. 1842
Borgers, G. 2192
Bornhauser, S. 1967, 1985
Bornstein, S. 1160, 1956
Bosch, R. G. 251, 252
Bosq, P. 17, 251, 252

	ABSTRACTS
Bostick, W. L.	1169
Bothén, N. F.	2147
Botvinick, I.	37, 356, 795
Bourgain, M.	1249
Bouteille, J.	671
Bowyer, H. W.	1307
Boyd, L. J.	1520
Boyers, L. M.	1149
Bradfield, J. Y.	1663
Bradford, B.	1298
Brain, R. T.	1511
Brandão, C. H.	2512
Brandsma, C. H.	1227
Brandstaetter, S.	1365
Brandt, F. A.	2270
Bráñez Cepero, E.	1079
Branot, F. A.	1907, 1927
Bras, G.	1394
Braun, H.	2079
Bray, W. E.	910
Brea, M. M.	326, 1709
Brena Zorrilla, M.	2368
Brett, M. S.	2230
Brewer, C. R.	713, 714
Brewer, W. C.	1776
Brian, R. T.	1266
Briney, A. K.	1382
Britt, E. C.	346
Briz de Negroni, C.	1379, 1380, 2114
Broc, R.	2407
Brockman, D. D.	1121
Broders, A. C.	184
Brody, M.	893
Brookfield, E.	1325, 1535
Brown, D. C.	206
Brown, E. A.	1332
Brown, G. N.	718
Brown, J. E.	1675
Brown, J. M.	92
Brown, R.	1525, 1873
Brown, T. G.	1201
Browne, H. R.	536
Brownell, T. S.	460
Browning, W. H.	40
Browns, H. L.	2272
Broyles, E. N.	397, 617, 1010
Brueck, J. W.	465, 1822
Bruwer, A.	661
Bruyere, P. T.	1693
Bryan, C. S.	1037
Bryant, J. B.	1107
Bryden, R. R.	1728
Brygoo, E.-R.	2294, 2456
Bubis, J. L.	462
Buchbinder, M.	765
Buckley, W. R.	2515
Buddingh, G. J.	1822
Bueno, P.	45
Buer, A. W.	157
Bugie, E. J.	1109
Bullen, J. J.	1700, 2434
Bumgarner, F. E.	1464, 1465, 1748
Bunnell, I. L.	1164, 1167, 1174, 1175
Buonocore, P.	2128
Burch, J. C.	294
Burdon, K. L.	28, 651
Bürgel, E.	2030
Burger, E.	280
Burke, F. G.	738
Burke, R. C.	1464, 1465, 1666, 1748, 1892
Burkhart, R. J.	1001
Burks, J. W.	722
Burnip, R.	1894
Burns, E. L.	465
Burns, R. E.	2117
Burns, R. H. G.	2395
Burrows, H. J.	454
Burtness, H. I.	1851
Bush, J. D.	293
Bushby, S. R. M.	1524
Buso de Casas, C.	2447
Buss, W. C.	1665
Bustinza, F.	2535
Butt, E. M.	505
Buxton, A.	1953
Byrne, E. A. J.	399, 621, 1035
Byrnes, J. E.	820
Cabieses Molina, F.	2415
Cáceres, M.	1385
Čajkovac, Š.	1459
Caldwell, G. T.	22
Calero, C.	708, 866, 878, 972, 1137, 1138
Callahan, W. P.	523
Callar, D.	759
Callaway, J. L.	183, 227, 410, 645
Camp, E.	570, 813, 817, 1013
Campanella, P.	2032
Campbell, C. C.	644, 936, 1183, 1184, 1285, 1412, 1413, 1414, 1569, 1687, 1688, 1692, 1903, 2143
Campbell, D. A.	1298
Campbell, F.	1761, 2004
Campenella, P.	2032
Campins, H.	1885
Campourcy, A.	1136
Cañas, E.	21
Cancela Freijo, J.	314, 1405, 1875, 1896
Cancio, C.	1832
Canessa, L.	234
Canizares, O.	600, 2317
Cap de Hourat, E. L.	196
Caplin, S. M.	1500
Carbonera, P.	2216
Card, L. E.	430
Cardama, J. E.	2261
Carini, A.	641
Carli, G.	1738
Carlier, G. I. M.	1216
Carlone, M. J.	153
Carlson, A. S.	1362
Carmichael, J. W.	2433
Carneiro, A. L.	1814
Carney, R. G.	1474
Caro, M. R.	382, 2523
Caroline, Leona	1819, 2098
Caron, Mme J.	2304
Carrasco, M. C.	1488
Carrick, L.	810, 985, 1509
Carrie, C.	2319, 2320
Carrión, A. L.	14, 367, 525, 1052, 1803
Carroll, D. S.	1596, 2408
Carslaw, R. W.	97, 2184
Carson, L. E.	1569
Carter, G. R.	2252
Carter, H. E.	2054
Carter, H. S.	1865
Carter, R. A.	76, 921
Carton, C. A.	2253, 2413
Casanovas, M.	1521, 1522, 1523, 1702, 2354, 2405, 2492
Caset, I. E.	912
Cash, R. L.	2250
Casida, L. E.	2458
Casper, E. A.	574
Cassady, J. V.	693

	ABSTRACTS
Cassamagnaghi, A.	1952
Cassels, D.	230
Castellano, T.	485
Castello, A.	335
Castello, L.	2459
Castillo, C. G.	1358
Castro, A.	2424
Castro Jenkins, A.	1874
Castro Palomino, J.	50
Catanei, A.	118, 119, 191, 192, 271, 284, 285, 345, 349, 359, 519, 520, 538, 601, 602, 636, 800, 801, 848, 982, 983, 1221, 1946, 2005, 2498
Cauchy, L.	2449
Cavallero, C.	655, 680, 889, 2429
Cawley, E. P.	1097, 1248, 1397, 1457, 1461, 1476, 1548
Cazzola, D.	1432, 1713, 1714, 2153
Celis Peréz, A.	166
Cenac, P. L.	299
Cercós, A. P.	2027
Champion de Crespigny, C. T.	484
Chan, E.	2209
Chanton, E. F.	1088
Chapman, G. H.	2462
Chattaway, F. W.	1984
Chaudhuri, H.	783
Chavarría, A. P.	1874
Chaves, E.	325
Cheeseman, E. A.	2178, 2179
Chen, J. H.	140
Chenault, S. W.	1935
Cheney, G.	504, 508
Cheng, W. W. F.	2323
Chermsirivathana, S.	2463
Cherniak, E. N.	808
Cherry, C. B.	725
Chitty, H.	240
Chmel, L.	1022
Christie, A.	743, 744, 1178, 1810, 2142, 2271
Ciferri, R.	422, 733, 777, 837, 844, 845, 1052, 1123, 1217, 1934
Cipollaro, A. C.	365, 809
Cipriani, P.	1124
Cirenei, A.	925
Citron, S. R.	438
Civatte, A.	1049
Clagett, O. T.	1926
Clark, A. R.	233
Clark, W. A.	1204
Cleland, J. B.	687
Cleve, E. A.	1160
Cleveland, D. E. H.	205
Cline, E.	1418
Clough, F. E.	528
Cloward, R. B.	1070
Coca, A. F.	379
Cochet, G.	24, 773, 1294, 2513
Coe, G. C.	475
Cochlo, B.	1731
Cogan, D. G.	1611
Cohen, D. L.	139
Cohen, D. M.	2314, 2315
Cohen, R.	1389, 1894, 2126, 2156, 2263*a*
Cohen, T. M.	558, 607
Cohen-Adad, Mme F.	2248, 2295
Colbert, J. W.	1620
Colburn, J. R.	297
Coldefy	1196
Cole, C. R.	1695, 1696
Cole, D. P.	1806
Cole, R. L.	2273
Colio, L. G.	1265
Collins, L. H.	1192, 1411
Collins, V. P.	2104
Collins, W. T.	1043
Colonna, P. C.	274
Colonnello, F.	548, 1431
Combes, F. C.	1245, 1530
Comby, L.	469
Conan, N. J.	1893
Conant, N. F.	51, 154, 1721, 1810, 2431
Conley, J. J.	1608
Conlin, F. M.	941
Connell, G. H.	2454
Constam, G. R.	122
Constant, Elizabeth R.	2210
Conti, A.	2393
Cook, A. W.	2110
Cook, W. R.	1868
Coon, E. H.	686
Cooper, N. S.	881
Cooper, Z. K.	290
Cope, V. Z.	1310, 1311, 1818, 2229
Cordero, A. A.	80, 1134
Cormia, F. E.	1198
Cornbleet, T.	351, 415
Cornell, A.	237
Corrigan, K. E.	1290, 1572, 1573
Cory, J. C.	2481
Costa, L. P.	1396
Costa, O. G.	35, 169, 408, 1041, 1129, 1646
Costigan, P. G.	1574
Cotte, J.	1508
Cotton, B. H.	1888
Coudert, J.	1022, 1508, 2001
Couteau, Mlle M.	2113
Coutelen, F.	24, 1294, 2513
Coutinho, A.	2
Cowen, D.	1957
Cox, L. B.	909
Craddock, W. L.	1898
Craig, G. E.	2356
Craig, W. McK.	1672
Crane, A. P.	1864
Craps	1519
Craps, M.	1947
Craster, C.	2345
Crawford, G. M.	1253
Crittenden, P. J.	404
Crofton, J.	2269
Crookston, J. H.	2093
Cross, F. W.	1180, 1185
Crossman, Ruth	19
Crow, K.	1266
Crowley, M. C.	439
Croxon, J. H.	399
Culbert, R. W.	1989
Culbertson, C. G.	1177
Cullen, C. H.	2231
Cunha, A. C.	1127
Curasson, G.	1050
Curban, G. V.	1576
Curry, J.	1497
Curtis, A. C.	940, 1397
Curtis, G. D.	1301
Curtis, G. H.	891
Cury, A.	498, 894, 1329, 1821, 1936, 1937
Cutting, W. C.	435
Cuttino, J. T.	1321
Da Cunha Motta, L.	1132
Da Fonseca, O.	911
Daglio, C. A. N.	968, 1203, 1379, 1446, 1706, 1722

ABSTRACTS

Dahlin, D. C. 1561
Dailey, M. E. 1190
Dalton, J. E. 1756, 1993
Da Luz, J. B. . . . 1224, 1228, 1276
Danby, C. W. E. 1218, 2356
Daniel, P. M. 1361
Daniels, T. C. 2195
Danisset, M. 1402
Danowski, T. S. . . . 1110, 1111, 1363
Darcel, C. le Q. 1953
Darier, J. 1049
Da Silva, A. C. 2512
Da Silva Lacaz, C., see under Lacaz, C. da S.
Da Silva Lacaz, J., see under Lacaz, J. da S.
D'Atri, G. 2203
Davidson, A. M. 353
Davies, A. J. 2495, 2496
Davila, J. C. 2430
Davis, C. L. 28, 156
Davis, C. N. 928
Davis, E. L. 378
Davis, H. V. 737
Davis, J. C. 1697
Davisson, J. W. 2218
Day, J. K. 405
De, S. N. 2384
De Almeida, F. 46, 85, 130, 144, 145, 226, 301, 304, 331, 696, 1127, 1306, 1650, 1932, 2038, 2419, 2512
De Almeida Prado, A. 277
Deamer, W. C. 888
De Amicis, E. 2087
De Arêa Leão, A. E. 1329
De Armas, V. 202
De Azevedo, A. P. 1648
De Azevedo, C. 1932
Deblase, J. A. 338, 546
De Boer, C. 1067
De Bré, R. 704, 900
De Camp, P. T. 1084
De Campos, E. C. 302
De Carvalho, A. 2438
De Carvalho, R. 1707
De Castro, C. 1848
De Castro, M. 371
Dechambre, E. 690
Decker, H. R. 974
Decoud, A. C. 189
De Fernandez, M. N. G. 1715
Degos, R. 2167
DeKay, H. G. 117
De Kouroch 1196
De Lamater, E. D. 32, 1060, 1063, 1106, 1345, 1346, 1816
Delaney, J. R. 557
De Laosa, O. 642
Deletraz, R. 1626
Delikat, E. 474
Delitsch, H. 179
Dell' Acqua, G. 449
Deller, F. C. 1053
Delvoye 1187
De Magalhães, O. 638, 1057
De Maranda, M. P. 1848
De Mello, I. F. 158
De Mello, M. T. 498, 974
De Minjer, A. 1052
De Montemayor, L. 2220
De Moraes Grey, J. 210
Denenholz, E. J. 504, 508
Deness, T. 895
Denis, J. 953
Dennie, C. C. 996

ABSTRACTS

Dennison, A. D. 585
Denton, P. H. 1117
De Oliveira, E. 1369, 1640
Derifield, R. S. 2273
Derrick, E. H. 711, 1176
Derzavis, J. L. 395
De Saint-Rat, L. 856
D'Eshougues, J. R. . . . 1581, 2248, 2295
Dessausse, P. 1626
De Stefano, A. 1308
De Villafañe Lastra, T. 213
Devos, A. 1264
Dey, N. C. 5, 384, 1009, 1048, 1237, 1241, 1933
Díaz, M. F. 1874
Díaz-Rubio, M. 1847, 2085
Dietrichson, E. 1705
Diller, Irene C. 1929, 1930
Dillon, Ann 1918, 2451
Di Menna, Margaret E. . . . 1460, 2460
Dimond, N. S. 34
Di Pietro, A. 554, 1396
Ditscheid, W. 1780
Diwiz, O. 2350
Dixon, H. M. 778
Djoa Liang Ham 1394
Dobes, W. L. . . . 188, 1477, 1801, 2177
Dobson, L. 435
Dochat, G. R. 184
Dockerty, M. B. . . . 86, 273, 1585, 2073
Dodge, C. W. 1810
Dogan, E. 1074
Doherty, D. D. 1516
Dolce, F. A. 569, 1004
Domart, A. 1850
Dominguez, C. M. 1730
Donahue, H. C. 1853
Donoso, R. 1891
Dorling, G. E. 459
Dormer, B. A. 486, 898
Dósa, A. 1793
Dostrovsky, A. 1014, 1197
Dougherty, Nancy 2026
Douglas, R. V. 872
Douglass, E. D. 135
Dowath, D. H. 2148
Dowding, E. S. . . . 348, 920, 1188, 1925
Dowling, G. B. 1734
Downing, J. G. . . . 224, 357, 1252, 2176
Downing, J. W. 424
Dozier, H. L. 214
Dozier, S. M. 2303
Draheim, J. M. 2280
Drake, C. H. 187, 262, 322, 1040, 1051, 1096, 2389
Dreyfus, Simone 2047
Drieux, H. 677
Drobotko, V. G. 429
Drouhet, E. 899, 1113, 1114, 1120, 1366, 1568, 1638, 1872, 2034, 2113, 2254, 2370, 2538, 2539
Drummond, K. L. 1862
Duarte, E. 938, 2260, 2420
Dublin, W. B. 1177
Dubose, H. M. 2074
Duché, J. 1964
Duemling, W. W. 565, 1387
Duhig, S. V. 1944
Dunavant, D. 1593
Duncan, J. T. . . . 20, 798, 1053, 1054
Dunkerley, G. E. 2412
Dunn, R. C. 135
Durlacher, S. H. 761

	ABSTRACTS
Duryea, A. W.	2256
Duryee, A. W.	874
Du Toit, C. J.	106
Dutton, L. O.	1330
Echenique, L.	2193
Edelson, E.	2345, 2508
Edgecombe, A. E.	16
Edmunds, M.	1213
Edwards, G. A.	1622
Edwards, L. B.	1420
Edwards, Phyllis Q.	2444
Edwards, R. W.	2372, 2464, 2465, 2466
Egeberg, R. O.	2432
Ehrlich, L.	1680
Eichbaum, F. W.	1292
Eichenlaub, F. J.	995
Eidelberg, E.	2415
Eirinberg, I.	1987
Elejalde, G.	132, 303
Elena, J. P.	1503
Eliassow, A.	2343
Elmore, F. H.	1656
El-Moslemani, A. A.	2342
Elo, R.	2234
Elson, W. O.	616, 1293
Elton, N. W.	2280
El Zahawi, S.	1613
Emerson, R. L.	699, 1067
Emge, M. E.	1174
Emmerson, B. T.	2358
Emmett, J.	2425
Emmons, C. W.	15, 30, 100, 116, 126, 135, 283, 317, 381, 950, 1052, 1194, 1195, 1287, 1425, 1427, 1428, 1492, 1698, 2037, 2221, 2410
Ende, M.	1867
Engel, A.	2243
Engelhard, C. F.	1435
Ennever, J.	1299
Ephraim, H.	1437, 1703
Eppright, B. R.	1754
Epps, L. J.	233
Epstein, E.	1018
Epstein, S.	551, 2222
Ercoli, N.	2224
Erdos, J.	1827
Erich, J. B.	1616
Erickson, A. B.	1673
Eriksen, N.	1570
Ernstene, A. C.	2272
Errecart, L. M.	839
Errington, P. L.	23
Esquivel Medina, E.	1385
Esteller, J.	2492
Evans, A. N.	1374
Evans, E. E.	1364, 1637, 2107, 2111
Evans, G.	1818
Everett, H. H.	1295
Evert, J. A.	973
Ewan, J. R.	1677
Eyckmans, R.	2522
Faghin, M.	2206
Fahrner, A. H.	95
Fainer, E. M.	1469
Fainsinger, M. H.	1305
Fanconi, G.	1304
Fanelli, D.	1032
Fanning, J. L.	622
Faragó, L.	2359
Faria, P. N.	45
Farina, L.	1243
Farina, R.	1879
Farrell, W. A.	102
Farren, J. E.	103
Farris, E. M.	872
Fasal, P.	563
Fawell, W. N.	2272
Fazakas, A.	222
Feder, J. M.	306
Fejer, E.	1966
Feldman, D. J.	930
Feldman, R.	1594
Felsenfeld, O.	321
Felsher, I. M.	361, 1502, 1987
Felton, L. C.	1025
Feoli, L. S. J.	1131
Ferebee, S. H.	946
Ferguson, R.	918
Fergusson, A. G.	1053
Fernandes, M.	1135
Fernandez, L. L.	968
Fernando, H. V. J.	2401
Ferrada Urzúa, L. V.	1727, 1891, 2120, 2302
Ferreira, A. J. de L.	101, 193
Fialho, A.	1566
Fienberg, R.	318
Fierz, H. E.	131
Figley, E. D.	1333
Filho, A. M.	1732
Fincham, I. H.	2159
Fink, R.	1077
Finlay, A. C.	2218
Finlay, C. C.	1313
Finn, O. A.	1972
Finnegan, J. V.	1408
Finnerud, C. W.	543
Finocchiaro, M.	324
Firestone, G. M.	1386
Fischer, E.	1565, 1719, 2194
Fischer, H.	2132
Fischer, I.	199
Fischer, J. B.	2212
Fischer, V.	2200
Fiset, P.	2472
Fishbein, H. A.	1267
Fisher, A. A.	2360
Fisher, A. M.	2108
Fisher, Dorothy	2514
Fisher, I.	1230
Fisher, J. K.	813
Fisher, Mary	1929
Fishman, I. M.	2219
Fishman, J.	482
Fitz-Hugh, T.	401
Fitzpatrick, T. B.	1981
Flanagan, H. F.	524
Flanders, T.	857
Flarer, F.	2084
Fleming, R. S.	849
Flinn, C. B.	346
Flo, S. C.	842
Floch, H.	2467
Florenzano, G.	1950, 2158
Flores, L. O.	1649
Florestano, H. J.	2312
Flower, A. H.	1948
Floyd, J. L.	2241
Földvári, F.	1839, 2361
Foley, E. J.	1007, 1008, 1257
Foley, G. E.	1443, 2411
Fontaine, T. D.	1212
Forattini, O. P.	1126, 1306
Forbus, W. D.	1153
Ford, J. H.	908

	ABSTRACTS
Forman, F. S.	2131
Forsee, J. H.	1657
Forsey, R.	1218
Foshay, L.	29
Fossati, C.	1583
Fowle, L. P.	1270
Fowlkes, R. W.	150
Fox, H. H.	36
Fraenkel, E. M.	479, 884
Frank, E. R.	678
Frank, S. B.	2199
Franks, A. G.	170, 1032, 1757, 1960, 1992, 2002, 2199, 2360, 2362
Frappier, M.	1403
Fraser, C. G.	2123, 2426
Frasier, E. S.	795
Freedman, L. J.	605
Freis, E. D.	814
Fréour, P.	2130
Frey, J. R.	96
Friedl, Martha	2239
Friedlander, J.	486
Friedman, H. P.	1177
Friedman, L. L.	692
Friedman, M. M.	923
Friedman, V.	1675, 1676
Friedmann, I.	2292
Friess	1187
Fritzemeier, W. H.	1003
Froman, A.	2063
Frutchey, L.	958
Fuentes, C. A.	113, 757, 2373
Fuentes Villalobos, P.	1882
Fuller, C. C.	458
Fulton, C. O.	631
Fulton, J. D.	2497
Furcolow, M. L.	740, 945, 946, 1163, 1164, 1167, 1173, 1174, 1175, 1416, 1426, 1694, 1911, 2439, 2450, 2452
Furtado, A. da R.	2024, 2198
Furtado, T. A.	1130, 1133
Fusillo, M. H.	1834, 2390, 2393
Fustinoni, O.	236
Gabrielsen, E. K.	111
Gaethe, G.	2181
Gage, M.	1084
Galloway, A. G.	1160
Gandy, W. M.	1636
Gang, K. M.	2109
Gant, J. Q.	1541
Gante, E.	1232
Garber, C. Z.	1589
Garcia, D.	2494
García Valdecasas, F.	1521, 1522
García-Zorrón, N.	1348
Gardiner, S. S.	239
Garrett, H. D.	1044
Garvan, J.	1313
Gass, R. S.	1918
Gasser, I.	1770
Gaté, J.	1022, 1508, 2001
Gates, E. M.	1672
Gatti, J. C.	2261
Gaul, L. E.	588
Gaumond, E.	493
Gausewitz, P. L.	1949
Gaviña Alvarado, E. R.	198
Gazmuri Ojeda, O.	1080
Geiger, A. J.	761
Geister, R. S.	2077
Gelenger, S. M.	2548
Gemoets, H. N.	142
Gendel, B. R.	1867
Georg, L. K.	1199, 1270, 1750, 1767, 1810, 2265, 2363
George, B. S.	1208
Georgi, C. E.	389
German, G.	396
Gerstl, B.	1098, 1324, 2417
Ghosh, L. M.	384, 822, 1009, 1237, 1241, 1489, 1933
Giardini, A.	1223, 1451
Gibbes, J. H.	958
Gibbons, N. E.	631
Giblett, E. R.	1982
Gibson, T. E.	1665, 2430
Gifford, M. A.	1665
Gilardson, A.	1709
Gilbert, R. O.	1466
Gill, W. D.	879
Gillespie, J. R.	926
Gilliam, J. S.	2091
Gillies Annan, W.	1542
Ginés, A. R.	1671, 1679
Gini, R. A.	196
Gins, H. A.	662
Ginsberg, A.	1320
Ginsberg, D.	1800
Ginsberg, M.	2096
Girardi, V. C.	675
Glahn, M.	2064
Glass, F. A.	816, 1244, 1769
Glenn, W. R.	39, 114
Glicklich, E. A.	1473
Globus, J. H.	2109
Glosson, J. R.	2371
Glover, R. P.	1076
Gluck, Vera	1885
Glusker, D.	1882
Goblin, M.	1610
Goddard, J. C.	1420
Godlen, A.	341
Goetz, C. G.	700
Gohar, N.	1056
Goldberg, A. A.	2053
Goldberg, H. C.	1773
Golden, M. J.	1538, 1772, 1790, 1791, 1792
Goldin, H.	443
Goldin, M.	2314, 2315
Goldman, L.	36, 1859
Goldstein, D. M.	207, 300
Goldworthy, N. E.	1939
Gomes, R. P.	1275
Gomez, J. E.	802
Gómez, R. F.	1670, 1884
Gómez del Campo, C.	1882
González, A.	540
González, M. de Los A.	843
González Ochoa, A.	26, 70, 105, 176, 246, 255, 256, 268, 1278, 1385, 1886, 1905, 2028, 2102, 2223
González Peris, G.	642
Goodman, H.	352, 362
Goodman, J. M.	797
Goodof, I. I.	448
Gordon, D. M.	1042
Gordon, L. E.	930
Gordon, M. A.	2074, 2265, 2366, 2367, 2374, 2375, 2536
Gordon, R. F.	1953
Gore, I.	311
Goren, M. L.	717
Goret, P.	2244
Gorham, Mary E.	2406

	ABSTRACTS
Gorlenko, M. V.	1328
Goto, M.	894
Gottlieb, A.	320
Gottlieb, D.	1094, 2054
Gottlieb, O.	1300
Götz, H.	1450, 1743, 1961
Gougerot, H.	1810
Gould, E.	1671, 1679
Govindan Nair, R.	98
Graham, H. W.	888
Grant, J. L.	1192, 1411
Grant, R.	2388
Grant, Virginia Q.	2048, 2215
Grant Peterkin, G. A.	1236
Gray, A.	815
Grayston, J. T.	2281, 2446, 2448
Graziosi, F.	1854, 1855
Greco, G.	2007
Green, P.	1682
Green, R.	1746
Green, R. H.	1620
Greene, H. S.	630
Greengard, J.	2470
Greenhouse, J. M.	2211
Greening, R. R.	903
Greenwood, K.	1745, 2324
Greenwood, R. C.	2094
Greer, A. E.	142
Greer, S. J.	1657
Gregg, D. B.	944
Gregory, J. E.	341
Gregory, P. H.	2400
Grekin, J. N.	940, 1807
Grekin, R. H.	1457
Grieshaber, F. C.	2181
Griffith, B. T.	2247
Grimm, Nancy T.	2327
Grimmer, H.	2519
Grimson, K. S.	257
Grixoni, F.	1495
Grocott, R. G.	747
Groover, M. E.	1160
Grossman, S.	2275
Grubb, T. C.	2195
Grumbach, Mlle	704, 900
Grunberg, E.	1027, 1689, 1789, 2186
Gucker, T.	274
Guevara Pozo, D.	489
Guilbert, Y.	1090
Guillot, G.	690
Guimães, J. P.	2260, 2420
Guimarães, L. M.	1039
Guimarães, N.	1686, 1897
Gunche, F. F.	374, 1131
Gurling, K.	2401
Gurri, J.	1632, 1877, 2137
Guthrie, Frances	1593, 2075
Gutmann, G. E.	769
Gutzke, M. A.	2048, 2215
Guy, R.	1402, 1403
Gwynne Waldin, G.	393
Gyarmati, L.	1588
Györkö, A. C.	2521
Haber, H.	1266, 1511
Habibi, A.	859
Habibi, M.	1214
Hackney, V. C.	1993
Haddad, N.	2407
Hadgraft, J. W.	1266, 1511
Hadida, E.	1481
Häfner. A.	1268
Hagan, W. A.	420
Hage, T. J.	775
Hager, H. F.	1318, 1595
Hagerman, G.	1087
Hailey, H. E.	39, 114
Hales, A. B.	1363
Haley, L. D.	1562
Hall, H. T. B.	633, 634, 1543
Hall, W. E. B.	247
Halpern, B. N.	1850
Halpern, L. K.	1339
Halpern, W.	2344
Halpert, B.	763
Hamil, B. M.	1708
Hamilton, A. J. C.	441
Hamilton, D. M.	1362
Hamilton, J. B.	896
Hamilton, J. W.	434
Hammer, J.	2065
Hammer, J. M.	1290, 1572, 1573
Hampton, S. F.	480, 885, 886
Hanford, J. M.	250
Hankin, M. A.	134
Hankins, C. R.	941
Hannema, L.	2391
Hansen, A. E.	2141
Harant, H.	684, 2304
Harant, P.	497
Harder, F. K.	827
Hargrove, M. D.	1083, 1088
Harington, C.	129
Harkness, W. D.	2051
Harmon, K. S.	1193
Härö, S.	1455, 1456
Harrell, E. R.	1145
Harris, A. M.	235
Harris, R. H.	2046
Harsh, G. F.	681
Hart, L.	1207
Hartley, F.	1030
Hartman, E.	2372
Hartman, F. W.	1921
Hartz, P. H.	779, 970
Harvey, N. A.	1142
Haserick, J. R.	2086
Haskin, A. H.	2345, 2508
Haskins, R. H.	2418
Hassin, G. B.	901
Hassis, W. Z.	112
Hatch, R. D.	472
Hatch, W. E.	238
Hatcher, F.	711
Hathaway, R.	2132
Haubrich, L. R.	832
Haubrich, W. R.	832
Haupt, E.	1661
Hauser, F. V.	1704
Hausman, R.	1429
Havyatt, M.	2505
Hawes, L. E.	930
Haxthausen, H.	2197
Hayden, H. S.	1290, 1572, 1573
Haymaker, W.	341
Haynes, D. M.	724
Hazen, Elizabeth L.	846, 987, 1066, 1074, 1525, 1563, 1685, 1873, 2339, 2376, 2436
Hazen, H. H.	990
Heckenroth, F.	1086
Hehre, E. J.	1362
Heilman, F. R.	1076, 1105, 1352
Heinemann, B. D.	1256
Heinlein, J. A.	1467
Heinrich, S.	2061

	ABSTRACTS
Heinsius, E.	2118
Heise, E. R.	1335, 1336
Heise, H. A.	1335, 1336
Heisel, E. B.	793
Hellier, E.	1501
Hellier, F. F.	567, 999
Helmer, D. E.	211
Helmuth, W. T.	2468
Helve, O.	2029
Hemphill, J. E.	109
Henderson, F. W.	2475
Henderson, J. L.	326
Hendrickson, G. G.	442
Henningsen, A. B.	36
Henrici, A. T.	187, 262
Henry, B. S.	1982
Herbst, E. J.	713, 714
Herbut, P. A.	55
Hernandez, I. Maria	1831
Herrell, W. E.	184, 1076, 1089
Herrera, J. A.	275, 313
Herrick, J. A.	426, 610, 612
Herrmann, F.	792, 804, 1007, 1008
Hersh, J. H.	440
Hertig, A. T.	2306
Hertzog, A. J.	1610
Heseltine, W. W.	2377
Hess, G.	283
Hess, W. I.	724
Hesselbrock, J.	36
Hesseltine, H. C.	2299
Hetherington, L. H.	124
Hevia, H.	368
Hewlitt, A. B.	895
Heydemann, J.	336
Hiatt, J. S.	767, 1619
Hiatt, W. O.	1434
Hickey, R. J.	1820
Hicks, J. D.	712, 1139
Hidy, P. H.	1820
High, R. H.	740, 945, 948
Highley, G. B.	1590
Hill, E. L.	1427
Hill, H. A.	1504
Hillegas, A. B.	570, 1013, 1785
Hincky, M. B.	2008
Hinds, J. R.	41
Hinton, Agnes	2439
Hirsch, E. F.	1317
Hirschmann, V. R.	1755
Hirst, J. M.	2400
Hitch, J. M.	84
Hobby, Gladys L.	2026
Hodges, E. A.	2051
Hodgson, C. H.	1926
Hoekenga, M. T.	1890
Hoerlein, A. B.	632
Hof, T.	964
Hoff, C. L.	62
Hoffman, A. M.	505
Hoffman, Mary	1878
Hoffmann, E.	1322
Hoffmann, W.	683
Hoffmeister, W.	2103
Holinger, P. H.	307
Hollaender, A.	606, 1492
Holland, M. H.	1808
Hollenbeck, W. F.	258
Hollis, W. J.	1083, 1088
Hollström, E.	333
Holm, K.	627
Holm, P.	1091, 2056
Holman, J. C.	1036
Holt, R. A.	83
Holz, H.	2015
Holtzwart, F.	1282, 1560
Homann, W. J.	1227
Honorato, A.	1870, 1941, 2357
Hopkins, J. G.	568, 570, 813, 1013, 1052, 2484
Hopper, Mary E.	120, 364, 419, 796, 821, 829, 1198, 2045, 2337
Horáček, J.	1515
Horne, S. F.	1461
Horta, J.	760
Horton Smith, C.	1953
Hosemann, G.	2078
Hotchkiss, Margaret	838, 2445
Hottle, G. A.	1181, 1189
Houck, G. H.	1392
Howe, G. W.	1635
Howell, A.	154, 949, 1166, 1172, 1185, 1186, 1191, 1693, 1912, 1913, 1914, 1915, 1916
Howell, J. B.	2523
Hoyer, B. H.	2228
Huber, A.	131
Huber, W. M.	1500
Hudgins, A. P.	71
Hudson, C. B.	882
Hülphers, G.	1615
Humphreys, F. A.	211
Humphries, W. C.	863
Hunter, W. R.	1312
Huppert, M.	1490
Hurst, Valerie	2059
Hutchison, H. E.	2442
Huttel	497, 684
Hvid-Hansen, N.	2392
Hyde, B.	1383
Hyde, L.	1383
Hyman, G. A.	1893
Iams, A. M.	524, 943, 1810
Iapalucci, L.	374
Iaricci, V.	731, 916
Iehl, H.	2001
Ilukewitsch, A.	2403
Iriarte, D. R.	180, 181, 344, 952
Irving, H.	55
Ivanov, X.	1830
Iversen, Louise	1857
Iverson, H. A.	437
Izac, R.	119
Jablońska, S.	1837
Jacob, P.	1580
Jacobson, C. E.	273
Jacobson, J. R.	1070
Jadassohn, W.	131
Jaeger, H.	1986
Jaffin, A. E.	337
James, A. P. R.	177
James, L. H.	578, 786
James, T.	626
Jamieson, R. C.	4
Jamison, H. W.	921, 932
Janbon, M.	2129
Janke, D.	1274, 1547, 1550, 1980, 2040, 2163, 2369
Janowitz, H. D.	1584
Jaworska-Kozakowa, K.	1579
Jeandidier, P.	481
Jelliffe, D. B.	1400
Jellison, W. L.	1895
Jenkins, R. E.	1756, 1993
Jenkins, V. E.	2264
Jentsch, M.	1578

ABSTRACTS

Jerchel, D. 2330
Jillson, O. F. . . . 1490, 2157, 2515
Jiménez Orta, M. . . . 1847, 2085
John, M. B. 685, 880
Johnson, D. W. 1176
Johnson, E. A. 785, 828
Johnson, H. M. 354, 840
Johnson, S. A. M. . . 1887, 2191, 2327
Johnston, W. A. 336
Johnstone, H. G. . . . 1169, 2148
Joiner, L. S. 404
Joiner, R. R. 619
Jolly, H. R. 1255
Jonchère, H. 1858
Jones, F. S. 1949
Jones, J. W. 2177
Jones, P. E. 862
Jones, S. H. 483
Jones, T. C. 412
Jones, T. E. 460
Jonez, H. D. 1881
Jörg, M. E. 196
Jorstad, L. H. 309
Joslyn, D. A. 44
Joubert, L. 2244
Joulia, P. 549
Jung, H. D. . . . 1779, 2041, 2329
Junqùeira, M. A. 35

Kagen, M. S. 1284
Kaliski, S. R. 2435
Kalkoff, K. W. 1274
Kalz, G. G. 762
Kampe, A. 1323
Kanof, A. 818, 819, 1019
Kaplan, L. 1601
Kaplan, S. 1368, 1876
Kapros, C. E. . . . 1358, 1633, 1871
Karlson, A. G. 1112
Karn, M. 1667
Karnaky, K. J. 541
Karotkin, L. 295
Karpluk, F. E. 1467, 1804
Kasten, H. E. 453
Kastlin, G. H. 923
Kaufman, N. 2386
Kaufmann, W. 488
Kay, E. B. 867, 1075
Kazlowski, J. P. 1308
Keddie, F. M. 1169
Keddie, J. A. G. 988
Keeney, E. L. 396, 397, 398, 727, 768, 1010, 1570, 1845
Keith, H. M. 943
Keitt, G. W. 2457
Kelly, H. H. D. 2076
Kelly, R. G. 1681
Kemper, J. W. 312
Kempf, J. E. 426
Kendall, R. F. 963
Kernohan, J. W. 416
Kerr, W. J. 2148
Kervran, P. 519, 1158
Kessel, J. F. 1282, 1434, 1560, 1883, 1919, 2111
Kesten, Beatrice M. 2484
Key, J. A. 7
Khoury, C. 675
Kiessling, W. 2331
Kimball, A. 678
Kimmelstiel, P. 1587
Kimmig, J. 1796, 2330

ABSTRACTS

King, N. B. 835
Kingman, H. E. 2080
Kinnear, J. 1235
Kipkie, G. F. . 1693, 1913, 1914, 1915, 1916
Kirby, W. M. M. 668
Kirk, H. 1038
Kirshbaum, J. D. 1664
Kitchin, P. C. 1299
Kleiman, A. H. 292
Kleinberg, J. 824
Klemme, D. E. 1026
Kley, D. 2224
Kley, E. C. 376
Kligman, A. M. 780, 1065, 1122, 1260, 1359, 1720, 1729, 1763, 1800, 1816, 1824, 1864, 2050, 2068, 2139, 2140, 2161, 2162, 2205, 2210, 2347, 2483, 2510
Klinck, G. H. 483
Klinefelter, H. F. 863
Klöpping, H. L. 2052
Klotz, M. O. 1342
Kneidel, J. H. 1674
Knott, J. 525
Kocher, F. 407
Kocková-Kratochvílová, A. 1442
Köhler, B. 1309
Köhlmeier, W. 1866, 2488
Kohn, P. M. 2235
Koller, F. 1179
Koller, M. 1309
Kolonja, S. 865
Konar, N. R. 2384
Königsbauer, H. 2318
Kooperstein, S. I. 923
Koransky, A. 652
Korting, G. W. 2201, 2520
Korttila, K. 2152
Kotcher, E. . . . 1901, 1979, 2284, 2453
Kotter, G. F. 1394
Koutrolikos 1618
Kozhevnikov, P. V. 808
Krainer, L. 895
Kreitner, H. 2488
Kressmann, M. 1625
Kressmann-Debus, E. 1438
Kritzer, M. D. 1883
Krop, S. 2204
Kruspe, M. 1742
Kuhn, H. 1179
Kuhn, L. R. 1360
Kulowski, J. 969
Kulvin, M. M. 1852
Kumlin, T. 2298
Kunstadter, R. H. 503, 774, 1678, 1684, 1725, 2470
Kurotchkin, T. J. 52
Kurung, J. M. 63, 851
Kurz, E. R. H. 1154
Kuzma, J. F. 739, 1407
Kvapil, K. 1125
Kwoczek, J. 1798
Kym, O. 1268

Labarge, O. J. 1374
Labatut Diaz, G. 1710
Lacaz, C. da S. 46, 130, 132, 144, 145, 226, 301, 303, 304, 331, 509, 531, 696, 730, 1126, 1127, 1129, 1135, 1306, 1349, 1369, 1646, 1652, 1932, 2512
Lacaz, J. da S. 2396

ABSTRACTS

Lacerda, P. M. G. . . . 833, 1039
Lack, A. B. 1662, 2432
Lack, H. 1384
Lacroix, L. J. 1112
Lacy, Helen 2151
Ladany, E. 1343
Ladd, W. E. 242
Laffer, N. C. 718, 971
Lahey, W. J. 820
Lain, E. S. 862
Lall, H. K. 1597
Lam, F. K. 939
Lamadrid, L. 2085
Lamas Pouey, E. 209
Lamb, J. H. 862
Lamb, W. F. 1979
Lambelin, E. 1947
Lamphier, T. A. 1141
Lamy, M. 704, 900
Landis, L. 2204, 2224
Landívar, A. F. 234
Landy, M. 854, 1265
Lane, C. G. 572, 1253
Lane, J. D. 431
Lange, W. 2277
Langer, J. 2202
Langeron, M. . 1281, 1430, 1653, 1723, 2367
Lankford, E. 436, 617
Lapa, C. 2009
Lapiere, S. 1943
Large, A. M. 7
Larsh, H. W. 2439, 2452
Laskaris, T. 1301, 1494
Latouche, C. J. 1878, 2511
Laur, W. E. 2346
Laurens, S. 2219
Laurent, P. 2023
Law, A. 143
Lawler, A. L. 1659
Lawson, R. N. 629
Laymon, C. W. 586, 790
Leach, B. E. 908
Leão, A. E. de A. 498, 547, 590, 593, 894, 965, 1821, 2024
Leão, A. T. 1292
Learward, D. L. 2303
Leben, C. 2457
Leblois, C. 900
Leblond, S. 2472
Leccisotti, G. 907
Lecha, E. 2354
Lecompte, P. M. 967
Lecoulant, P. 549, 1205
Lederer. H. 1433
Ledin, R. B. 570, 813, 1013
Lee, R. K. C. 1229
Lee, R. V. 503
Lee, S. W. 1007, 1008, 1257
Lee, W. E. 354
Lefranc, M. 2005, 2332
Le Garrel, L. 2165
Legrain, M. 1580
Le Henaff, G. 2529
Lehman, E. P. 442
Lehman, W. L. 1860
Lehmann, C. F. 1749
Leibovitz, A. L. 795
Leiby, G. M. 639, 2432
Leider, M. 2360
Leikins, S. 1901
Leinbrock, A. 2340
Leise, J. M. 578
Leite, A. S. 1228, 1276

ABSTRACTS

Leite, S. 342
Lejeune, A. O. 2490
Leland, L. S. 1802
Lennox, M. 576
Lenormand, H. 1209
Lentze, F. A. 2236
Leon, E. R. 3
Leon, L. A. 1551
León, R. 287
León y Blanco, F. 347
Leoni Iparraguire, C. A. 234
Lerner, M. N. 1989
Lesser, M. A. 2520a
Levin, O. L. 385
Levine, S. 694, 1340, 1861
Levitus, Z. A. 1365
Levy, B. M. 495, 517, 518
Levy, M. D. 726
Lewe, I. 652
Lewin, W. 706
Lewis, E. F. 1599
Lewis, G. M. 120, 364, 365, 419, 796, 821, 829, 1198, 2045, 2337
Lewis, I. 1163
Lewis, J. H. 624
Ley, E. 2387
Li, K. K. 1540
Lide, T. N. 1619
Liebow, A. A. 75
Lilienthal, B. 1939, 1940
Lilleengen, K. 1615
Lima, A. O. 1897
Lima, Carneiro, A. 582
Lindemann, B. 1841
Lindsay, H. C. L. 296
Linell, B. 2112
Link, H. V. 2188
Lipnik, M. J. 2483
Little, A. C. W. 1320
Little, J. A. 1899
Littman, M. L. 847, 855, 1059, 1104, 1288, 1817, 1834, 2390
Livingood, C. S. 401, 1259
Lloyd, J. B. 2306
Lloyd Davies, J. A. 2066
Lobitz, W. C. 1806
Lôbo, J. 343
Lo Cascio, A. 1520
Lodder, J. 1052
Loefer, J. B. 2378
Loewenthal, K. 1033, 1034, 1468, 1758, 1759, 1804, 1983, 2187, 2207
Lohel, H. 2015
Lomholt, S. 571
London, I. D. 1512
Long, P. H. 2409
Looney, J. M. 1660
Loosli, C. G. . . . 1384, 2127, 2281, 2446
Lopez, A. A. 1061, 1732
López-Fernández, J. R. 1480
López-Neyra, C. R. 489
Lorenz, O. 2237
Lotspeich, E. S. 762
Loud, N. W. 1154
Louie, S. 207
Love, S. V. 1398
Lovestedt, S. A. 2058
Loving, W. L. 2051
Lowbeer, L. 487
Lowe, E. P. 175, 269, 885
Lowen, H. J. 1833
Lowenfish, F. P. 805
Lubert, M. 244

	ABSTRACTS
Ludwig, B. J.	619
Luger, A.	2524
Luna, D. F.	912
Luque, F. G.	1093
Lurie, H. I.	1279, 1325, 1395, 1535, 2031
Lustig, B.	2013
Luteraan, P. J.	853, 856, 953, 954, 1430, 1723
Lydon, F. L.	1533
Lynch, F. W.	596, 993, 1230
Lynch, J. F.	2276
Lynch, J. P.	451
Lyons, C.	195, 1084
Ma, R.	580, 1212
Macaluso, C. P.	1160
Macchi, A. J.	667
Macgregor, A. B.	444
Macgregor, Agnes R.	326
Machado Guimarães, L.	833
Machaffie, L. P.	1238
Macke, R. L.	358
Mackee, G. M.	804, 809
Mackenna, R. M. B.	566, 1053, 1818
Mackenzie, P. Z.	2397
Mackinnon, J. E.	18, 42, 750, 1242, 1291, 1350, 1351, 1375, 1544, 1545, 1553, 1609, 1641, 1642, 1727, 1877, 1891, 1976, 2033, 2137
Mackler, Helen	2427
Maclaren, J. A.	1728
Maclean, Helen	2470
Macnab, G. H.	432
Macneal, W. J.	447, 873, 874
Madden, A. G.	29
Madden, J. F.	1045
Madeira, J. A.	1126
Madiedo, O.	540
Madsen, D. E.	164
Madsen, E.	1786, 2525
Maechling, E. H.	1750
Magarey, F. R.	1117
Magarinos Torres, C.	547
Mager, J.	701, 905
Magnus, R. v.	1073
Magnusson, B.	2112
Magrou, J.	1811
Mahon, H. W.	1657
Malgras, J.	1485, 2540
Mallmann, W. L.	1573
Mancy, E. S.	2500
Mandel, E. H.	1757, 1992, 2362
Mandels, G. R.	1794
Mankikar, D. S.	1746
Mann, B.	2290
Manning, I. H.	1942
Manoil, L.	2124
Mansi, W.	2398
Manten, A.	2052
Manting, G.	411
Mantz, H. L.	741, 1163, 1393
Manwaring, J. H.	1354
Maplestone, P. A.	5
Maragnani, U.	1577
Marano, A.	913
Marchand	1205
Marchionini, A.	1743
Marcovski, L. E.	2297
Marcus, M. D.	2301
Marcuse, P.	295
Marcussen, P. V.	2526
Mariat, F.	1568, 2034, 2538
Marill, F. G.	1481
Markanen, M. V.	2212

	ABSTRACTS
Markel, I. J.	1471
Marks, M. B.	542
Marotel	2485
Marple, C. D.	500
Marples, Mary, J.	1460, 2325, 2460, 2501
Marre, I. R.	977
Marroquin, A. S.	843
Marsh, W. C.	2183
Marshall, M.	159, 2414
Marsiaj, N.	1686
Martin, A. J.	846, 1074, 1563
Martin, D. S.	64, 767, 1052, 1810
Martin, H. M.	25
Martin, J. G.	1580
Martin, M.	1858
Martin, W. P.	308
Martini, P.	270
Martin-Scott, I.	2491
Martins Ferreira, J.	593
Marwin, R. M.	1701
Mason, L. M.	2371
Masson, A. M.	2238
Massoud, G. el D.	1447
Matheney, R. G.	2287
Mathias, D.	327
Matilla, V.	1968, 1969, 2168, 2169, 2333, 2334
Matras, A.	201
Mattei, C.	1086
Matthews, J. D.	812
Mattman, Lida	2435
Maunsell, K.	887
Maurer, F. C.	412
Mauriello, D. A.	1808
Mayan, L.	1086
Mazzei, E. S.	869
Mazzini, M. A.	1503
McCabe, Anne M.	1321, 1562
McCarthy, E.	826
McCarthy, L.	203
McCauley, D. W.	2255
McClellan, J. T.	2445
McCloy, A.	138
McClure, R. D.	1920
McCormick, W. C.	2371
McCoy, Elizabeth	2458
McCracken, J. M.	1785
McCrea, Adelia	4
McCrea, J. H.	445
McCrea, L. E.	673
McCready, R. M.	112
McCuiston, C. H.	1754
McCullough, W. G.	713, 714
McCune, D. J.	340
McDavid, J. E.	2196
McDonald, J. B.	300
McDougall, T. G.	292
McDowell, H. C.	718
McElvain, N. F.	1629
McGaughey, C. A.	2397
McGavack, T. H.	1520
McHardy, G.	206
McIlrath, M. B.	771
McIntosh, H. C.	461
McKee, E. E.	1607
McKenney, F. D.	298
McKenny, C.	1266
McLaren, J. A.	1356
McLaughlin, C. B.	1025
McLaughlin, F. W.	1152
McLaughlin, R. F.	299
McLaughlin, R. R. M.	427
McLeod, J. H.	738
McNaught, J.	668

	ABSTRACTS
McQue, B.	1794
McQuown, A. D.	1288
McReynolds, S. U.	682
McTier, L. A. W.	1598
McVay, L. V.	1593, 2075, 2408, 2476
McVeigh, I.	823, 1761, 2004, 2149
McVickar, D. L.	1910, 2138, 2142, 2285
Mead, C. I.	2266
Mead, Margaret	1944
Meade, B. W.	2401
Medeiros, O.	288
Meessen, H.	2030
Megaw, J. W. D.	421
Mehl, J. W.	2107
Mehl, W.	1575
Meinert, R.	1768
Meissner, W. A.	967
Meleney, H. E.	27
Melgarejo de Talavera, M. S.	1671, 1679
Mello, M. T. de	894
Melo, N. L.	391
Melo, V. F.	391
Melton, F. M.	2506
Memmesheimer, A. M.	1458, 2171
Mendez Lemaître, A.	2116
Menges, R. W.	1694, 2282, 2283, 2439, 2450
Menville, L. J.	903
Merchant, A. K.	77
Merkle, C.	243
Merucci, E. L.	877
Mescon, H.	1824
Meyer, E.	415, 772, 824, 1284, 2081
Meyer, J.	1485, 1766, 2540
Meyerding, H. W.	86
Meyser, Esther	2077
Mezzadra, G.	2084
Miale, J. B.	115
Miall, W.	2290
Michael, M.	545
Michael, P.	299
Michel, P. J.	2023
Michot, J.	481
Middleton, J. G.	1910, 2142
Mider, G. B.	910
Migliaccio, A. V.	1318, 1595
Milberg, I. L.	1988
Milian, G.	455
Miller, C. R.	1293
Miller, D.	1388
Miller, E. R.	78
Miller, H. E.	1169
Miller, I. R.	2275
Miller, J. K.	663
Miller, J. L.	805
Miller, J. M.	2096, 2409
Miller, L.	2126
Miller, Madelyn P.	2453
Miller, N. G.	2389
Mills, R. C.	713, 714
Milzer, A.	1678, 1684, 1725
Mintzer, Ida J.	2343
Miowski, D. K.	2201, 2520
Mira, A.	2429
Mirand, R. N.	2240
Mitchell, J. R.	2280
Mitchell, H. H.	365
Mitchell, J. A.	2172
Mitchell, R. B.	2497
Mitchell-Heggs, G. B.	1536
Mitra, S. K.	674
Mitz, R.	1663
Mochi, A.	2444
Moers-Messmer, W. v.	1798
Mogabgab, W. J.	2241
Mohler, J. R.	99
Mohr, J. L.	225
Momberg-Jörgensen, V. S.	2307
Moncorps, C.	1232
Moncourier, L.	1626
Monod, O.	2249
Monroe, S. E.	2123, 2426
Montanaro, E.	1737
Monteiro, E. L.	2419, 2512
Monteiro de Barros, O.	1643
Montemayor, L.	1351, 1372, 1727
Montessori, P. P.	715
Montgomery, R. M.	88, 1467
Montpellier, J.	284
Moody, A. M.	902
Moore, M.	31, 53, 290, 309, 411, 1295, 1326, 1339, 1371, 1571, 1752, 1810, 2150, 2301
Moore, R. L.	631
Moorman, H. E.	405
Morais, D.	521
Moreau, M. H.	1344
Morehead, R. P.	197
Moreira, L. F.	2260, 2420
Moreira, N. M.	1211
Moreno, G. R.	190, 1206
Morère, P.	1481
Morgan, D. B.	996, 1470
Morgenstern, P.	1140
Morginson, W. J.	609, 624
Moriamé, G.	1453, 1454, 1507
Morin, J. E.	2472
Morlan, H. B.	1427
Moro, O.	490
Morquer, L.	469
Morquer, R.	1210, 1938
Morris, A. A.	762
Morris, G. E.	360
Morrow, M. B.	175, 269, 1331, 1332, 1844
Morton, C. B.	280
Mosberg, W. H.	1634
Mosconi, G.	1432
Moseley, V.	2416
Mosier, J. E.	1697
Moss, E. S.	465
Mosto, D.	731, 916
Motta, L. da C.	146
Mottram, M. E.	1504
Moule, G. R.	1092
Mount, L. A.	2253
Moura, R. de A.	2419, 2512
Mrak, E. M.	291
Muende, I.	573, 1251
Mülhens, K.	1528
Mullet, S.	2513
Mumford, E. J.	225
Mundt, L. K.	1371
Mundt, W.	2403
Muñoz, I. D.	1314
Muñoz, J.	1847
Muntz, H. H.	1115
Murphy, J. A.	994
Murphy, J. C.	1506
Murphy, J. D.	1956
Murphy, J. M.	1040
Murphy, R. J.	2274
Murray, J. F.	2270
Murrell, T. W.	2182
Muskatblit, E.	54, 87, 365, 803, 1031, 1085, 1239, 1479, 1499, 2514
Mussey, R. D.	1585
Muster, I.	756
Mutscheller, A.	809

	ABSTRACTS
Nabarro, J. D. N.	1143
Nash, M. P.	1067
Natvig, A. T.	1119
Nauck, E. G.	2262
Nechtow, M. J.	1712
Neff, F. C.	737
Negri, T.	942
Negroni, P.	11, 12, 13, 17, 72, 80, 81, 110, 160, 161, 168, 173, 199, 213, 265, 313, 665, 666, 919, 931, 942, 968, 1047, 1134, 1147, 1203, 1370, 1376, 1377, 1378, 1379, 1380, 1446, 1594, 1654, 1706, 1722, 2036, 2114, 2261, 2370, 2393
Neill, J. M.	1358, 1633, 1871, 2255
Neiman, B. H.	95
Nékám, L.	1781, 1999, 2316
Nelson, L. M.	65
Nelson, P. A.	47
Netherton, E. W.	891
Neto, C. F.	145
Nettleship, A.	1775
Nettrour, W. S.	1840
Neu, J.	1964
Neves, J. A.	79, 2259
Newcomb, A. L.	1367
Newcomer, V. D.	2428
Newmann, A. V.	1098
Newton, A.	1337
Nguyen-Duc	684
Nichols, D. R.	1089
Nick, J.	704, 900
Nickerson, W. J.	1004, 1052, 1108, 1263, 1622, 1717, 2157, 2378, 2379, 2480
Nicod, J. L.	1100
Niel, K.	1866
Nielsen, C. S.	1367
Nielsen, J.	123
Nikolowski, W.	1452, 1770
Nilsby, I.	1604, 1711
Nilzén, Å.	1825
Niño, F. L.	167, 836, 913, 914, 915, 1396, 1645, 1891, 2120, 2277, 2278, 2302
Nižnánsky, F.	1125
Noel-Hanson, P.	217
Nogueira, J. F. P.	1224
Noguer, S.	1778
Nolte, Alida	2302
Noojin, R. O.	109, 183, 410
Nordén, Å.	1099, 1424, 1711, 2112, 2227
Norman, I. L.	1659
Norman, S. L.	1867
Normand, E.	704, 900
Norris, E. O.	2082
Norris, R. F.	961, 962, 1200, 1864
Nottebohm, T.	161
Novák, J.	2201
Novak, M.	857, 1315, 1340, 1861
Nystérakis, F.	1210, 1938
Oblath, R. W.	2148
O'Connor, W. B.	1805
O'Daly, J. A.	289
Odom, S. P.	254
O'Farrell, N. M.	1250
O'Flaherty, F.	1271
O'Hara, H.	1859
O'Hare, J. E	2123, 2426
Olansky, S.	1755
Oliveira Lima, A.	1686
Oliveira Ribeiro, D.	132
Oliver, H. G.	2479
Olney, J. F.	2245
Olson, B. J.	516, 950, 1194
O'Neill, F. J.	1367
Oosthuizen, S. F.	1305
Ordal, Z. J.	694, 772, 892
Ordman, D.	1846
Orlandini, E.	1714
Ormea, F.	1777
Ormerod, F. C.	2292
Orozco, C.	268
Orr, Mary F.	2286
Orr, T. G.	456
Orsini, O.	1240
Ortiz, P.	878
Osborne, E. D.	1231
Osbourn, R. A.	995
Oster, K. A.	1538, 1772, 1790, 1791, 1792
O'Toole, E. K.	2242
Ottolenghi, R.	229
Oviedo Bustos, J.	452
Owen, C. R.	195
Owen, G. C.	1658
Oxford, A. E.	2305
Paalman, R. J.	1585
Paasch, E.	662
Paaso, E. J.	2067
Pacheco, R. S.	2028
Pachev, I. P.	2297
Paci, Domenica	2176, 2344
Page, E. W.	1149
Page, R. M.	1990
Palchanis, W.	1900
Paldrok, H.	1825
Palen, J. S.	2080
Palik, E. E.	104
Pallaske	834
Palmer, Alice E.	9
Palmer, C. E.	515, 736, 742, 947, 1420, 1683
Panassenko, V. T.	66
Panisset, M.	1403, 1902
Panja, D.	822, 1009, 1048, 1237, 1241, 1933
Panja, G.	966, 1072
Panskin, A. F.	2308
Papin, P.	2019
Pappen, J. R.	395
Pará, M.	735, 1159
Pardo-Castello, V.	3
Park, R. G.	555
Parkhill, E. M.	1168
Parodi, S. E.	330
Parrillo, O. J.	1908
Parsons, R. J.	10
Pascher, F.	90
Passarelli, N.	1848
Pasternack, J. G.	74, 171
Pates, A. L.	1182, 1429
Pätiälä, R.	951, 976, 980, 1023, 1215, 1261, 1493, 1529, 2029, 2234
Patterson, C. N.	1942
Paul, J. S.	2390
Payne, R. C.	1677
Pearson, I. A.	1290, 1572, 1573
Pearson, R.	870
Pearson, T.	2300
Peck, R. L.	1809
Peck, S. M.	37, 38, 43, 355, 356, 795, 1262, 1510, 1540, 1810, 2313
Peck, W. N.	2274
Pedrosa Cunha, J.	1686
Peet, M. M.	2088
Pellegrino, J.	1133
Pelouro, J. T.	470, 858

	ABSTRACTS
Pemberton, H. S.	1312
Peña Yanez, J.	1968, 1969, 2168, 2169, 2333, 2334
Pendergrass, R. C.	502, 774
Penny, S. F.	1238
Pentkovskaya, Mme V. N.	789
Pepple, A.	150
Peppler, H. J.	185, 417
Peralta, P.	2387
Pereira, M. J.	1724, 1880
Pereiro Miguens, M.	2049, 2309, 2353, 2499
Perkin, H. A.	1527
Perlman, H. H.	604
Perrín, G.	172
Perry, I. H.	1631
Persky, M.	2156
Peryassù, D.	305, 732
Pesle, G.	2249
Pessano, J.	1047
Peters, J. T.	466
Peters, L.	311
Petersen, O. S.	1683
Peterson, J. C.	743, 744, 1178, 1910, 2142, 2285
Peterson, V. L.	332
Petit, P. T.	1332
Pfaff, R. O.	607
Pfanner, E. F.	723
Pfeifer-Scheff, Irene M.	1906
Pfuetze, K. H.	1076
Phelps, S.	1993
Phillips, B.	625
Phillips, G. E.	1834
Pickert, K.	2528
Picoduni, R.	234
Piekarski, J. W.	1849
Pierini, L.	80
Pierron	2485
Pillsbury, D. M.	1259, 2068, 2140, 2205
Pillsbury, N. R.	261
Pimentel Imbert, M. F.	334
Pinetti, P.	2174
Pinker, H.	2079
Pinkus, H.	794, 1807
Pinto Nogueira, J. F.	595
Pinto Puentes, R. J.	2385
Pio da Silva, M.	2115
Piorkowski, F. O.	223
Piper, J. E.	281
Pipkin, J. L.	1749, 2502
Piratininga, S. N.	413
Pires, A.	784
Pirilä, V.	2338
Plaut, A.	1639
Plummer, P. J. G.	676
Plunkett, O. A.	1208, 1286, 1556
Poix, G.	1302
Pokorny, R.	59
Polgár, P.	1781, 1999, 2316, 2359, 2361
Polonovski, C.	2477
Polster, M.	1515
Poppe, J. K.	670
Popper, J.	351
Porter, D. B.	2287
Porter, I. A.	2062
Postlewaite, J. C.	2264
Potelunas, M. D.	1198
Potier, E.	1444
Poulet, J.	1580
Poupart, G.	1402
Prado, J. M.	2036
Prado Sampaio, S. de A.	696
Pratt, H. N.	19
Pratt, P. T.	1680
Prchal, C. J.	1156
Price, H.	652, 1469, 1531
Price, S.	939
Pridham, T. G.	1094
Priestley, J. B.	235
Prieto, D.	784
Prieto, L. C.	2386
Prince, H. E.	175, 1332
Prior, J. A.	1162, 1695, 1696, 1900
Prunés, L.	96
Pryor, H. B.	1399
Ptáčková-Nižňanská, J.	1771
Puffer, R. R.	933
Puig Muset, P.	1521, 1522, 1702
Putman, A. C.	2073
Quarante, M.	677
Queen, F. B.	849
Quick, D. W.	1663
Quilhon, J.	2019
Quill, L. M.	294
Quinland, W. S.	1935
Quiroga, M. I.	1134
R., V. R.	468
Rabin, C. B.	1584
Radice, J. C.	931, 1131, 1147, 1368, 1370, 1876
Rae, M. V.	128
Rafalovitch, S. M.	1219, 1567
Raftery, A.	1920, 1921, 1922
Rajagopalan, V. R.	1597
Ramírez, G.	121
Ramirez, H.	2125
Ramirez, S.	1391
Ramsey, F. K.	2252
Ramsey, T. L.	137
Rananaure, M. N.	2070
Rand, R. W.	1297
Randall, C. C.	2138, 2286
Ranier, A.	2095
Rankin, J. L.	2177
Ranque, J.	787, 1005, 1024, 1690, 2352, 2529
Raper, F. P.	2072
Rasch, S.	2289
Rasson, G.	2423
Ratcliffe, H. E.	1868
Raubitschek, F.	539, 955, 1014, 1498, 2532
Rauramo, L.	2154, 2478
Ravens, J. R.	2415
Ravits, H. G.	1628, 2530
Rawling, F. F. A.	1333
Rawlins, A. L.	44
Rawson, A. J.	961, 962, 1171, 1192, 1410, 1411
Ray, E. S.	669
Ray, L. F.	1, 997
Rayner, M.	394
Rebell, G.	1763, 2205
Rebell, G. C.	570, 813, 1013
Rechter, M.	189
Rector, E. J.	1157
Rector, L. E.	1157
Redaelli, P.	422, 656, 733, 777, 837, 844, 845, 1052, 1123, 1217, 1934, 2429
Reedal, Jeanette S.	2191
Regna, P. P.	2026
Reich, W. J.	1712
Reiches, A. J.	2293
Reid, J. D.	55, 1863
Reidel, B. B.	2365
Reif, F. B.	1472
Reilly, E. B.	1118, 1726
Reilly, H. C.	425, 611
Rein, R. L.	2207

ABSTRACTS

Reingold, I. M. 1889
Reinhard, E. H. 448
Reiss, F. 383, 796, 1015, 1055, 1441, 1516, 1555, 1795, 1799, 1810, 1819, 2013, 2098, 2185
Renault, P. 1580
Ressetar, D. 2186
Ressmann, A. C. 1749
Rewell, R. E. 2090
Rey, J. C. 2277
Reyes, A. C. 2437
Reymann, F. 1603
Rhoden, A. E. 1150
Ribeiro, D. O. . . . 303, 696, 1932
Rice, A. G. 1160
Rice, F. A. 1384
Richou, L. 2531
Richter, R. . . . 1780, 2321, 2369
Riddell, R. W. 2226
Rifkin, H. 930
Rijkebüsch, L. 1394
Riley, Kathleen A. . . . 1440, 1948
Rimalovski, F. G. 2297
Rimington, C. 887
Ringelman, N. P. 36
Rioux, J. 2034
Riser, W. H. 748, 1112
Ritama, V. 2067, 2234
Ritter, F. H. 1647
Rivalier, E. 2014, 2167
Rizzi, V. 2101
Roantree, W. B. 2412
Robb, T. M. 1533
Robbins, S. J. 1478
Robbins, W. J. . . . 580, 823, 1810
Roberts, S. E. 2131
Roberts, T. E. 1000
Robertson, H. C. 2416
Robertson, R. F. 1439
Robinson, Anna E. R. 1989
Robinson, H. B. G. 1299
Robinson, H. M. . . . 1258, 1546, 2188
Robinson, J. W. 2284, 2453
Robinson, M. 1541
Robinson, R. A. 249
Robinson, S. S. 959
Robinson, V. B. 2285
Robison, J. M. 880
Rockwood, Ethel M. 1, 572, 1473
Roddy, W. T. 1271
Rodenberg, E. J. 254
Rodhain, J. 373
Rodríguez de Gregorio, E. 1760
Røed, H. 1857
Roessler, W. G. 713, 714
Roger, V. N. 1709
Rogers, A. M. 401
Rogers, F. S. 208
Rogers, G. K. 1148
Rogers, J. 1235
Rogers, L. 421
Rohn, J. G. 2430
Rohrschneider, W. 2369
Rojas, H. 2357
Rolle, M. 2403
Rollinson, D. H. L. 2160
Romaña, C. 643
Romano, A. H. 2480
Romano, D. 608
Rooks, R. 1101
Rosebury, T. 232, 233
Rosen, E. 2121
Rosenbaum, E. H. 272

ABSTRACTS

Rosenbaum, E. M. 2002, 2362
Rosenbaum, M. J. 1011
Rosenberg, E. F. 86
Rosenberger, H. G. . . 719, 720, 1144, 1415
Rosenman, S. B. 854, 1265
Rosenstein, N. 2012
Rosensweig, W. 1065, 1260
Rosenthal, L. H. 58
Rosenthal, M. 2124
Rosenthal, S. R. . . . 924, 1151, 1655, 1656
Rosenvold, L. K. 89
Ross, B. D. 1419
Ross, C. F. 2089
Ross, S. 738
Rossetti, N. 56
Roth, P. 690
Rothman, S. 614, 618, 791, 998, 1506, 1704, 1733
Routien, J. B. 924, 1151
Roux, P. 706
Roy, O. 1402
Ruhe, J. S. 1426, 1694
Ruiloba, J. 256
Ruiz, Oronoz M. 1226
Ruiz-Moreno, G. 956
Rundle, J. A. 2469
Runyon, E. H. 2060
Runyon, Laliah 2451
Russ, W. R. 1262
Russell, B. 1818
Russell, W. O. 654
Russo, A. G. 446
Russo, E. 2, 1275
Russo, G. 1854
Rust, S. 2519

Sachs, E. 654
Sachs, W. 2045, 2337
Sage, D. N. 329
Sagher, F. 981, 1197, 1482, 1498
Saglam, T. 734
Saibene, G. 705
Saito, M. T. 1144, 1146, 1415
Sala, G. 2429
Salazar Leite, A. 760, 1744
Salisbury, R. M. 1614
Salles, J. F. 547
Salucci, V. 2357
Salvin, S. B. 830, 937, 1165, 1181, 1189, 1277, 1289, 1353, 1423, 1810, 1823, 1928, 2092, 2228, 2380, 2481
Sampaio, N. 2336
Sampson, B. F. 103
Sánchez Botija, R. 2486
Sanders, A. G. 648
Sandoval, M. de Los A. . . . 176, 246
Sanford, G. E. 1586
Sano, M. 1787, 1788
Santas, A. A. 236
Santora, E. J. 396
Santros, J. A. 2447
Sa Penella, L. 2335
Sarpyener, M. A. 1931
Sartory, A. 147, 264, 266, 407, 671, 876, 1444, 1484, 1485, 1766
Sartory, R. 264, 266, 407, 671, 1484, 1485, 1766, 2540
Sashin, D. 718
Saslaw, S. 1183, 1184, 1285, 1412, 1413, 1414, 1676, 1687, 1688, 1692, 1696, 1903, 2143
Satenstein, D. L. 90
Saunders, L. Z. . . . 1107, 1623, 1815

	ABSTRACTS
Sautet, J.	787, 1005
Savage, J.	562
Savonheimo, U.	1069
Sawyer, C. S.	572
Saxen, E.	2029
Saxton, W. J.	711
Sayer, A.	278
Schäber, E. F.	2517
Schafer, E. L.	1904
Schain, P.	1308
Schalm, O. W.	216
Schary, J. M.	1885
Schatz, A.	425, 611, 1066
Schaub, C.	868
Scheff, G. J.	745, 1906
Scheffler, K.	1581
Schell, F. G.	2286
Schenken, J. R.	104
Scher, P.	898
Scherago, M.	1337, 1602
Scherr, G. H.	2445
Schiller, F.	1361
Schlumberger, H. G.	310
Schmidt, E. G.	1629
Schmidt, S.	1958
Schneidau, J. D.	1288
Schneider, D. R.	463
Schneider, R. C.	1297
Schnitzer, R. J.	2186
Schoebach, E. B.	2096, 2409
Schomer, A.	1373, 1381
Schopfer, W. H.	178, 350, 751, 752
Schorr, H. C.	351
Schouten, G. B.	18
Schraufstätter, E.	1780, 2321
Schreuder, P. J. v.d. H.	1269
Schubert, J. H.	774
Schultheis, D.	1537
Schulz, D. M.	1909
Schulz, H. J.	2000
Schuppli, R.	2006
Schurmann, W.	1766
Schuster, H.	2340
Schuster, M.	739
Schwartz, B.	2440
Schwartz, L.	38, 43, 356, 795, 991, 1017, 1053, 1541
Schwartz, M.	1103, 1603
Schwartz, S. O.	1680, 2441
Schwarz, J.	2251
Scigliano, J. C.	2195
Scolari, P. G.	189
Scott, M. J.	2364
Scott, V.	1924
Scully, J. P.	1259, 2347
Seabury, J. H.	746, 1691
Seale, E. R.	1204
Seale, Elizabeth E.	2322
Seale, W. H.	346
Secretain, A.	1850
Sedláček, V.	2003
Segall, H.	1674
Segretain, G.	899, 957, 984, 1113, 1114, 1120, 1366, 1638, 1872, 2249, 2254
Seibold, H. R.	698, 749
Seligmann, E.	2482
Selinke, H.	1730
Sellers, E. D.	1332
Selles, J. F.	965
Seman, R. D.	2296
Senft, G.	864
Sen Gupta, A. N.	2384
Senturia, B. H.	473
Seri, F.	1223
Serino, G. S.	664
Serowy, C.	2329
Serrano, M.	162, 163
Serri, F.	1220, 1451, 1517, 1539, 1765, 1784
Service, A. C.	310
Seuderling, Y.	2298
Sexton, L. J.	2306
Sexton, R. L.	1677
Seyot	481
Seys, R.	2456
Shaffer, B.	1012
Shaffer, June C.	2326
Shaffer, L. W.	9, 1046
Shahan, M. S.	28, 99
Shanks, S. C.	370
Shapiro, A. L.	614, 618, 998
Sharp, A. B.	2348
Sharp, H.	2504
Sharp, H. S.	553
Sharp, M. E.	2231
Sharp, W. B.	577, 685, 880, 1747
Shatin, H.	2317
Shaw, C.	402, 1002
Shaw, F. W.	388, 669
Shaw, H. C.	818
Shaw, L. W.	1912
Shay, D. E.	2195
Shearburn, E. W.	194
Shellow, H.	1534
Shelton, G. W.	1589
Sherer, J. H.	55
Shetty, M. V.	764
Shevky, M. C.	1631
Shilkin, J.	2399
Shoham, J.	250
Shookhoff, H. B.	237
Shorey, W. K.	1200
Shorvon, L. M.	870, 1078
Shulman, H.	457
Shultz, S.	829
Siegel, M. L.	2235
Sielaff, H.-J.	2061
Sigalos, P.	200
Sigel, H.	1222
Signorelli, J. J.	692
Silber, B.	308
Silva, Margarita	367, 1052, 1651, 2537, 2547
Silva, M. S.	917, 1135
Silvers, S. H.	365, 387
Simmonds, W. L.	2010, 2011
Simmons, G. C.	2395
Simões Barbosa, F. A.	57, 85, 781, 782
Simpson, R. E.	204
Simson, F. W.	6, 129, 709
Sing, T. B.	1526, 1797
Singer, E.	1357
Singh, B.	783
Sirkis, C.	1617
Siu, R. G. H.	1794
Skeer, J.	108
Skerman, V. B. D.	1064
Skinner, C. E.	1552, 1624, 2454
Slattery, R. V.	1384
Slaughter, J. C.	1248, 1476, 1756, 1993
Slim Villegas, V. J.	1917
Smale, L. E.	1390
Small, J. M.	895
Smiljanic, A. M.	614, 791, 998
Smith, A. de F.	1589
Smith, C. E.	75, 91, 291, 719, 720, 929, 1144, 1146, 1415, 2267

	ABSTRACTS
Smith, D. T.	257, 852, 1145, 1283, 1559, 1621, 2042
Smith, E. B.	315
Smith, F. D.	133, 910
Smith, H.	1155
Smith, H. B.	686
Smith, J. D.	1862
Smith, L. M.	640, 1044
Smith, M.	369
Smith, P. E.	842
Smith, R. H.	1358
Smith, R. T.	186
Smith, T. S.	1610
Smith, W. A.	282
Smorodintsev, A. N.	808
Sneddon, I. B.	82
Snow, J. S.	494, 1512
Snyder, B. L.	1148
Snyder, W.	2507
Sobels, J.	1116
Socías, A.	1828
Sodaro, J. C.	2097
Sofia, F.	534
Sokoloff, O.	2355
Solari, M. A.	190, 1206, 1715
Soliman, K. N.	2160
Solomons, I. A.	2218
Solotorovsky, M.	1109
Sontag, L. W.	1170
Soo-Hoo, G.	1789, 2186
Sorsby, A.	2214
Soto Pacheco, R.	2102
Southam, C. M.	649
Southworth, W. H.	60
Spaulding, E. H.	329, 673
Spediacci, G.	2404
Spencer, G. A.	587
Sperber, P. A.	1505
Spicer, C.	1434
Spinner, S.	134
Spitz, L. J.	2440
Sporer, A.	319
Springer, L.	641
Sprunt, D. H.	1593, 2075, 2476
Stahl, W. H.	1794
Stampel, B.	1958
Stange, H. H.	1836
Stanley, N. F.	1612, 1627
Starrs, R. A.	1342
Stavraniopoulos, T. G.	1736
Steel, H. H.	1726
Stein, C. U.	2328
Stein, T.	1660
Steinberg, I. R.	153
Steiner, P.	230
Stephanides, T.	1533
Stern, S. G.	1852
Sternberg, A. S.	1757, 1960
Stessel, G. J.	2457
Steven, R. A.	445
Stevenson, L. D.	1630
Steves, R. J.	993
Stewart, C. B.	1401
Stewart, S. M.	1524
Stieg, W. E.	2026
Stigter, W.	1448
Stiles, G. W.	156
Stillwell, D. E.	887
Stokes, J. H.	354
Stone, R. E.	599
Stoops, C. W.	1887
Stovall, S.	969
Strada, R.	1838
Strauch, J. H.	1751
Straughn, R. A.	1904
Strauss, M. J.	978
Strauss, R. E.	2050, 2068, 2483
Strauss, S. D.	392
Strickler, A.	535, 806, 807, 992
Stritzler, C.	2219
Stubenbord, W. D.	1006
Study, R. S.	1140
Suarez, R. M.	2447
Suárez Peregrín, E.	489
Subba Reddy, D. V.	372
Sugg, J. Y.	2255
Sullivan, C. N.	1783
Sullivan, M.	1267
Sulzberger, M. B.	90, 818, 819, 1019
Sundgaard, G.	1955
Surdey	697
Suteev, G. O.	1591
Suter, L. S.	2394
Sutherland, A. K.	1092
Sutphin, A.	340
Swan, L. L.	1408
Swanson, H. S.	282
Swartz, J. H.	418, 1473
Sweigert, C. F.	926
Sykes, E. M.	960
Sylvest, B.	1740
Symmers, D.	319
Szczepaniak, L. W.	1324
Tager, M.	73, 1110, 1111, 1324, 1363, 2235
Tahler, E. D.	1685, 2436
Taiana, J. A.	512
Talab, S. A. A.	1629
Tamblyn, E. Elizabeth	2428
Tanissa, A.	1246, 1735, 1782
Tanner, F. W.	2218
Tanzi, F.	2446
Targan, N. A.	598
Taschdjian, Claire	2533
Tasker, S.	959
Tassinari, G.	1404
Tate, B. C.	1053
Taylor, A. B.	1382
Taylor, H.	2469
Taylor, H. G.	170
Taylor, S. J.	218
Teed, R. W.	159, 2414
Tello, D. A.	174
Tello, E. E.	174, 1832, 2311
Temel, T.	2473
Témime, P.	2352
Tenberg, J. A. G.	1303
Tenen, M. M.	524
Tennenberg, D. J.	1166, 1167
Theodorides, E.	1618
Thibaut, D.	1247
Thiers, H. D.	1331
Thind, K. S.	783
Thjøtta, T.	1436, 1955, 2289
Thomas, B. A.	576
Thomas, W. C.	197
Thompson, A. K.	2406
Thompson, K. W.	33, 34
Thompson, L.	2057, 2058
Thompson, P. E.	722
Thorn, J. A.	2418
Thuringer, J. M.	316
Thys, A.	2422, 2423
Till, A. S.	672
Tinsley, M.	2003
Titsworth, E. H.	1689, 2186

	ABSTRACTS
Todd, R. McL.	1433
Tchobanian	1617
Tolhurst, J. C.	909
Tolmach, J. A.	1033, 1804
Tomaszewski, T.	2291
Tomb, J. W.	400
Tomlinson, W. J.	494, 747
Tomppert, H.	215
Toop, C. R.	263
Torbet, V.	1695
Toro, R. A.	1605
Torrens, J. A.	1316
Torres, C. M.	965, 2260, 2420
Touillier, J.	2540
Tovar, R. M.	1391
Townrow, V.	860
Trafas, P. C.	1920
Tramujas, A.	2240
Traub, E. F.	1537
Traum, J.	216, 298
Trejos, A.	2424
Trejos, W. A. J.	67, 409
Trespalacios, F.	3, 2373
Tribble, E.	306
Trice, E. R.	2326
Tucker, F. C.	1317
Tucker, H. A.	721, 1890, 1919, 1923, 2119, 2279, 2287, 2443
Tulipan, L.	87
Tumulty, P. A.	545
Tung, P. C.	140
Turner, E. V.	1675
Turner, J. W.	926
Turnoff, D.	258
Twiehaus, M. J.	185
Twining, H. E.	778
Tye, M. J.	2344
Tyler, G. R.	896
Tzanck, A.	1049
Ueberschär	2100
Ughetti, R.	643
Ulrich, Elizabeth	2421
Ulrich, J. A.	1981
Upton, M. F.	918
Urdal, K.	1955, 2289
Urso, B.	2146
Uzman, L. L.	2411
Vacátko, S.	2166
Valenzuela, E.	1202
Valério, A.	1965
Valiente, J. F.	136
Vallejo Vallejo, L.	1760
Vallery-Radot, P.	478, 1850
Van Assen, E. J. J.	2155
Vanbreuseghem, R.	1445, 1453, 1454, 1483, 1486, 1487, 1739, 1762, 1764, 1812, 1947, 1977, 1991, 1996, 1997, 1998, 2018, 2192, 2310, 2367, 2422, 2489, 2493, 2522, 2541, 2542, 2543, 2544, 2545, 2546
Van Brussel, M.	2543, 2545
Vandepitte, J.	2422
Van der Klerk, G. J. M.	2052
Van der Sar, A.	779, 970
Van der Weshuizen, G. C. A.	2305
Van Horn, F.	652
Van Pernis, P. A.	307
Van Uden, N.	2349
Vargas, A.	1869
Vass, I.	613
Vaughan, J. E.	2125
Vaughn, L. D.	184
Vawter, L. R.	679
Vázquez, B. R.	799
Vercruysse, A.	2341
Verge, J.	677, 2449
Verges, P.	2081
Verhagen, B. A.	1526
Verona, O.	2158
Versiani, O.	695, 728
Vest, S. A.	2091
Viana de Meira, M.	1744
Vidari, E.	776
Viégas, A. P.	428, 591, 592
Vigoroux, J.	1080
Viklický, J.	1718
Vilanova, X.	2405, 2492
Vilanova, Y.	1521, 1522, 1523, 1702, 2354
Villela, G. G.	1936, 1937
Vincent, Blanche	2274
Vinelli, H.	1350, 1351, 1641, 1891
Vink, H. H.	155
Viotti, M. R.	1129, 1646
Vivarelli, G.	1716
Vivoli, D.	1378
Vogel, F. S.	1630
Vogel, R. A.	2431
Volk, R.	21
Vollum, R. L.	1361
Von Gutfeld, F. J.	388
Voris, H. C.	2094
Voronov, D. L.	2257
Voyles, G. Q.	702, 703
Vuiliet, J.	787, 1005
Waisman, M.	811
Waksman, S. A.	425, 611
Walby, A. L.	2509
Waldin, G. G.	141
Walker, J.	434
Wallace, G. I.	405
Wallace, M. E.	1602
Walsh, E. N.	1068
Walsh, J. C.	686
Walstad, P. M.	2548
Walther, H.	1452
Walton, C. H. A.	1334
Walzer, E. A.	88
Waring, J. I.	944
Waring, W. S.	476, 688
Walker, Jacqueline	1971
Walton, R. B.	2025
Warren, A. S.	1104
Warren, Clara M.	2461
Warren, G. H.	854, 1265
Warren, L.	556
Wasserbauer, Z.	1835
Wassersug, J. D.	261
Watkins, A. G.	248
Watrin, J.	481, 697
Watts, C. A. H.	433
Watts, G. W. T.	380
Waugh, J. M.	2073
Weaver, R. H.	1337, 1602
Webster, J. R.	1970
Wedding, E. S.	494, 875
Weed, L. A.	943, 1168, 1319, 1561, 1926
Weekes, Claire	1951
Wegner, M. J.	1747
Weichardt, H.	2035
Weichlein, R. G.	2378

	ABSTRACTS
Weidman, F. D.	58, 778, 780, 816, 1359, 1769, 1810
Weidman, W. H.	1098
Weile, H.	1995
Weiner, D.	1520
Weiner, M. A.	1963
Weirich, C.	59
Weise, E. C.	107
Weisel, W.	1658
Weiss, A.	507
Weiss, C.	221, 1631
Weiss, E. S.	1912
Weiss, P.	1649
Weiss, R. S.	290, 1326
Weitkampf, A. W.	791, 998
Welch, S. H.	1161
Weld, Julia T.	2484
Wells, A. H.	238
Wenner, H. A.	761
Wernsdörfer, R.	620
Wespi, H. J.	770
Wessler, S.	536
Westfield, N. J.	404
Wetterquist, Y.	766
Weyers, H.	2232
Wharton, D. R. A.	1799
Wharton, M. L.	1799
Wheeler, Edna C.	1844
Wheeler, W. E.	1676
Whewell, C. S.	1984
Whiffen, A. J.	699, 908, 1067
Whildin, J.	212
Whims, C. B.	922
Whitaker, H. W.	1341
Whitaker, P. H.	1053
Whitcomb, F. C.	1678, 1684, 1725
White, C. J.	2097
White, H. S.	467
White, S. J.	1263
Whiting, E. G.	719, 720, 1144, 1415
Whittle, C. H.	1016
Wicker, E. H.	1104
Wickerham, L. J.	755
Wiener, M. F.	2105
Wier, R. H.	2432
Wikler, A.	135
Wilce, J. W.	1900
Wiles, F. J.	486
Wilhelm, S.	716
Wilkins, H.	763
Willett, F. M.	507
Williams, E. G.	135
Williams, J. W.	60, 1052
Williams, O. O.	445
Williams, V.	1630
Williamson, R. E.	117
Wilson, H. M.	2256
Wilson, J. E.	386, 2132
Wilson, J. F.	1532
Wilson, J. W.	850, 1286, 1556, 2164, 2523
Wilz, P.	2246
Windey, W.	2422
Winer, L. H.	1669
Winn, W. A.	127, 2122
Winston, D. R.	1795
Winston, M. E.	2071
Winter, W. D.	1443
Wise, E. G.	151
Wohlwill, F.	521
Wolf, A.	1957
Wolf, F. T.	473, 1028, 1052, 1095, 1728, 2020
Wolf, M.	2360
Wolfe, E. I.	2475
Wolfe, W. D.	564
Wolff, F. W.	2474
Wood, D. A.	527
Wood, H.	458
Wood, M. W. W.	1316
Woodruff, C. E.	1681
Woodruff, H. B.	2025
Woods, J. W.	1942
Wooldridge, W. E.	1571, 1752, 1878, 2208, 2381
Worgan, D. K.	934
Worley, G.	1949
Wormley, L. C.	2124
Wortmann, F.	1962
Wright, E. T.	2428
Wright, F. B.	1269
Wright, J. T.	1833
Wrong, N. M.	1994
Wybel, R. E.	2402
Wylie, P. E.	338, 546
Wyss, O.	619
Yamaguti, S.	68
Yañez, D.	121
Yates, A. L.	228
Yaw, Katherine	44
Yeager, G. H.	1826
Yeaman, A.	1282, 1560, 1919
Yew, C. C.	2263
Young, C. J.	2351
Young, F. W.	1037
Young, Jean L.	1865, 2421
Young, R. M.	1318, 1595
Zach, F.	788
Zackheim, H. S.	1046
Zaffran, A.	1582, 2248, 2295
Zahaw, S.	2296
Zahn, D. W.	1417
Zakon, S. J.	220
Zarafonetis, C. J. D.	514
Zeidberg, L. D.	1918, 2145, 2451
Zeigler, R. F.	377
Zettergren, L.	1082, 2471
Zilberberg, B.	2021
Zimerinov, A. A.	1219, 1567
Zimmerman, L. E.	1829
Zimmerman, P.	1986
Zimmerman, S. L.	958
Zini, F.	1950
Zinner, H.	2233
Zinzius, J.	2340
Ziskin, D. E.	250
Zuckerman, R.	1530
Zwerling, H. B.	742, 945, 947

SUBJECT INDEX

Absidia on animals, (?) transmission of, to man, 2374.
— *corymbifera* on animals in Germany, 215.
— — on man in U.S.A., 341, 473; complement fixation tests for, 1289.
(?) — — on the mink in U.S.A., 2307.
— — on the pig in Holland, 155.
— *italiana* on man in U.S.A., 1956.
— *italica* in relation to vitamin B_1 synthesis, 1568.
— *lichtheimi*, see *A. corymbifera*.
— *ramosa* on animals in Germany, 215.
Acenaphthene, use of, against *Trichophyton mentagrophytes*, 2196.
Acetic acid, use of, against dermatophytes, 822, 992.
Achorion, Endodermophyton synonym of, 5.
— on man, 971, 2173, 2174; in Algeria, 1481.
— *brumpti*, see *Trichophyton brumpti*.
— *caninum*, see *Trichophyton caninum*.
— *gallinae*, see *Trichophyton gallinae*.
— *gypseum*, see *Microsporum gypseum*.
— *milochevitchi*, see *Trichophyton milochevitchi*.
— *quinckeanum*, see *Trichophyton quinckeanum*.
— *schoenleini*, see *Trichophyton schoenleini*.
Achromia, parasitic, of man, *Hormodendrum* associated with, in Brazil, 1652.
Acremoniella lutzii on man in Brazil, 343.
— *olivaespora* on man in Algeria, 359, 1946.
— *unguis* on man in France, 552.
Acremonium on man in Brazil, 85; U.S.A., 142.
— *cinnabarinum* can infect the guinea-pig and rabbit, 264.
— — on man in France, 264.
— *potroni* can infect the mouse, 848.
Acriflavin, toxicity of, to dermatophytes, 182.
Acrocylindrium granulosum in relation to the Provence reed disease in France, 684.
Acro-ped ointment, use of, against dermatophytes, 1542.
Acrospeira macrosporoidea in the air in U.S.A., 1337.
Acrotheca on man in Indo-China, 2263.
— *pedrosoi*, see *Phialophora pedrosoi*.
Acrothecium in the air in Mexico, 1600.
Actidione, toxicity of, to *Cryptococcus neoformans*, 908, 2413; dermatophytes, 1796; use of, against mycoses, 2373, 2381.
Actinofiltrate, uses of, 1591.
Actinolysate, uses of, 1591, 1592.
Actinomyces in soil in U.S.A., production of antibiotics from, 1873.
— on animals, 164.
— on cattle in Algeria, 859; Great Britain, 1058; Portugal, 470.
— on the dog in U.S.A., 164.
— on man, 1301; in Algeria, 1086; Argentina, 1203; Austria, 865, 2233; Chile, 1710; Denmark, 2056, 2064; Finland, 1069; France, 1090; Germany, 2040; Great Britain, 2072, 2231; India, 1072, 2382, 2383; Italy, 449, 1577, 1583; Mexico, 246; Scandinavia, 2227; Sweden, 1082, 1087, 1296; Switzerland, 2239; Uruguay, 209, 1843; U.S.A., 245, 257, 382, 435, 437, 465, 670, 673, 846, 880, 1075, 1319, 1563, 1587, 1590, ?1611, 1672; U.S. Army, 1234; affecting the abdomen, 1296, 1577, 1587, 2072, 2239; appendix, 209, 865, 1082; bladder, 673; brain, 1672; buccal cavity, 245, 246, 1069, 2233; cheek, 1072; ear, 880; eye, 437; face, 1090, 1578; foot, 382, 465; heart, 449; intestines, 1069; liver, 1079; lungs, 670, 1069, 1086, 1087, 1319, 1583; neck, 1319, 1578; skin, 1234, 2383; spleen, 1319; subgluteal bursa, 1590; throat, 1073; uterus, 865; biochemical reactions of, 1073; control, 435, 670, 1069, 1075, 1087, 1296, 1319, 1577, 1590, 2072, 2233, 2239; by surgery, 2233, 2239; culture of, 2383; effect of hexylresorcinol on, 1292; immunization against, 1591; isolation of, 417, 1074, 1075, 1203, 1563; pathogenicity of saprophytic species of, to man, 859; production of actinofiltrate and actinolysate from, 1591, 1592; review of, 432, 852; sensitivity of, to penicillin, 1091; toxicity of eumycin to, 828; sulphadiazine and sulphathiazole to, 663; utilization of carbon compounds by, 1094.
[*Actinomyces*] on the pig in U.S.A., 679.
— on the turkey in Great Britain, 2245.
— *alboflavus* on man in Algeria, 359, 859.
— *albosporeus* on man in Algeria, 359.
— *albus* on man in Italy, 449; U.S.A., 254.
— *asteroides*, see *Nocardia asteroides*.
— *aureus* on the calf in Algeria, 359.
— *bovis, A. israeli* preferred as a name for, 233.
— —, life cycle of, 2082.
— — on animals, 99; in Brazil, 1057; (?) transmission of, to man, 2374.
— — on cattle, 216; in Brazil, 2396; Canada, 676; England, 2081; France, 677; Germany, 2246; Scandinavia, 1323; U.S.A., 2057, 2080; control, 2080, 2246, 2396; diagnosis of, 676.
— — (?) on the dog in U.S.A., 2083.
— — on the horse in (?) Australia, 2395; U.S.A., 678.
— — on man, see *A. israeli*.
— — on the muskrat in U.S.A., 214.
— *brasiliensis*, see *Nocardia brasiliensis*.
— *caballi* on the horse in France, 469.
(?) — *candidus* on man in Argentina, 464.
— *dermatonomus* on cattle in Queensland, 1092; New South Wales, 1598.
— — on sheep in India, 468; Western Australia, 263.
— *discofoliatus* on man in Argentina, 665.
— *farcinicus* on cattle in Colombia, 1093.
— *funduliformis* on the guinea-pig, 671.
— — on man in France, 671.
(?) — *gonadensis* on man in Argentina, 464.
— *graminis* on man in U.S.A., 448, 451.
— *hominis*, see *A. israeli*.
— *israeli* in ground water in Denmark, 2392.
— — on cattle, 2057.
— — on man, 1079, 1305, 1317, 2057, 2059; in Argentina, 251, 869; Brazil, 1306; Chile, 1080, 1314; Czechoslovakia, 2065; Denmark, 1300, 2064; Finland, 2234; France, 1302, 1580; Germany, 2061, 2069, 2079, 2232, 2236, 2237; Great Britain, 248, 672, 860, 1078, 1081, 1307, 1316, 2062, 2066, 2081, 2226, 2229, 2230, 2231; Holland, 2391; Hungary, 1839; India, 2070; Panama, 1061; Uruguay, 2385; U.S.A., 94, 206, 233, 247, 249, 250, 257, 258, 261, 435, 439, 463, 664, 851, 867, 872, 1083, 1084, 1085, 1088, 1089, 1282, 1283, 1284, 1308, 1559, 1560, 1563, 1584, 1585, 1589, 1593, 1833, 1840, 2057, 2058, 2063, 2073, 2074, (?) 2075, (?) 2376, 2388, 2389, 2390; affecting the abdomen, 872, 1089, 1284, 1585, 1840, 2062, 2075; appendix, 2079; blood and bone marrow, 1308; brain, 2063; breast, 1284, 2066;

central nervous system, 2062; ear, 860; face, 250, 664, 678, 1089, 1284, 1593, 2062, 2075, 2236, 2237; gluteo-sciatic region, 1314; heart, 2065; intestines, 2079; jaw, 2232, 2376, 2388; leg, 1089, 1589, 2075; liver, 1078, 1079, 1080, 1081, 2391; lungs, 94, 248, 251, 261, 867, 869, 1089, 1284, 1302, (?) 1563, 1580, 1584, 2063, 2065, 2069, 2070, 2079, 2234, 2390; mouth, 233, 247, 1584; neck, 250, 1300, 1833, 2062, 2075, 2236, 2237; ovaries, 1583, 1585; rectum, 2074; skin, 2062; spine, 2229, 2230; stomach, 672; throat, 871; viscera, 1310; associated with abdominal granuloma, brucellosis, Hodgkin's disease, and xanthoma tuberosum, 1308; cerebro-meningeal mycoses, 2039; pulmonary mycoses, 206, 666, 2042, 2074, 2075; salivary calculus, 438; comparative study of strains of *Actinomyces* from sputum with, 1074; control, 97, 248, 249, 258, 261, 435, 871, 872, 1078, 1080, 1081, 1084, 1085, 1088, 1089, 1284, 1300, 1307, 1314, 1316, 1559, 1586, 1593, 1833, 1839, 1840, 2055, 2063, 2066, 2070, 2073, 2074, 2079, 2230, 2231, 2232, 2237, 2385, 2388, 2390, 2391; culture of, 439, 1284, 1308, 1584, 1822, 1921, 2058, 2074, 2228, 2231; diagnosis of, 1721, 2061, 2236; effect of antibiotics on, 1834, 2068, 2074, 2077, 2080; penicillin on, 849, 857, 1091, 1315; streptomycin on, 857, 1315; sulphadiazine and sulphathiazole on, 857; endotoxin in, 2380; epidemiology of, 1054; erroneously diagnosed as tuberculosis, 1561; experimental infection of guinea-pig, 233; mouse, 848, 2077, 2081; rabbit, 233; fatty cytoplasmic inclusions in, 651; identification of, 1060; immunology of, 1816; in relation to asthma, 1563; infection of wounds by, 2231; isolation of, 851, 1299, 1563, 2389; non-pathogenicity of, 2399; preferred as a name for *A. bovis*, 233; radiate formation in, 650; review of, 852, 2368; serology of, 1594.

[*Actinomyces*] *keratolytica* on man in India, 1241.

— *madurae*, see *Nocardia madurae*.

— *mexicanus*, see *Nocardia mexicana*.

— *minutissimus*, see *Nocardia minutissima*.

— *mucosus* on man in India, 259, 2382.

— *muris-ratti* on man in Norway, 1842.

— — on the rat in Sweden, 2243.

— *naeslundi* on man in U.S.A., 2058.

— *necrophorus* on man in U.S.A., 440.

— *pelletieri* var. *hodeidae* on man in Arabia, 877.

— *plurichromogenus* on man in Algeria, 859.

— '*scabies*' on man in England, 1312.

— *septicus* on man in U.S.A., 447, 873, 874.

— *serophilus* on man in France, 876.

— *tenuis*, see *Nocardia tenuis*.

— *violaceus* on man in France, 147.

Actinomycetes in soil, antagonism of, to *Candida albicans*, *Cryptococcus neoformans*, *Trichophyton gypseum*, and *T. rubrum*, 1066.

— on animals, 1954.

— on the horse in Australia, 2395.

— on man in Germany, 864; U.S.A., 63; affecting mouth, 232; activation of extracts by ultrafiltration, 1525; associated with other micro-organisms, 2056; pleomorphism in, 2059.

Actinomycosis of animals, 1050.

— of the cat in U.S.A., 25.

— of cattle in Australia, 2399; Great Britain, 1599; U.S.A., 28, 2080; bacteria in relation to, in Australia, 2399.

— of the dog in Egypt, 2398; France, 2244; Great Britain, 1320, 2397; U.S.A., 25, 467.

[Actinomycosis] of *Hydrochoerus isthmius* in Panama, 878.

— of man, 1555, 1591, 1592, 1818; in Argentina, 234, 236, 252, 253, 446, 452, 667; Australia, 450, 2399; Austria, 2233; Brazil, 210, 1306, 2240; Canada, 1574; Central America [? San Salvador], 136; China, 140; Czechoslovakia, 1835; Denmark, 123, 1186, 2056; Germany, 662, 1578, 1581, 1841, 2078; Great Britain, 138, 240, 241, 248, 260, 441, 454, 459, 870, 1311, 2071, 2076; Hawaii, 1071; Holland, 1303; Hungary, 1588; India, 1489, 2382, 2383, 2384; Italy, 1838; New South Wales, 239, 1313; New Zealand, 41; Pacific Islands, 225; Panama Canal Zone, 875; Poland, 455, 1579, 1837; S. Africa, 433, 443, 661, 1305; Spain, 2387; Sweden, 1296; Switzerland, 122, 243, 861, 868, 1077; Uruguay, 1843; U.S.A., 92, 95, 139, 186, 194, 195, 206, 235, 237, 238, 242, 244, 332, 397, 434, 442, 445, 453, 456, 457, 458, 460, 461, 462, 609, 862, 1083, 1297, 1587, 2235; U.S. Army, 863; affecting the abdomen, 242, 457, 459, 1083, 1296, 1298, 1311, 1835, 1837, 2078; bladder, 238; bone, 234, 244, 454, 1083; brain and nervous system, 453, 1297, 2387; chest, 242, 332, 450, 1083, 1298, 2383; ears, 92; face, 140, 252, 253, 260, 441, 442, 444, 446, 861, 862, 1083, 1832, 1843; hand, 455; heart, 237, 456; intestines, 194, 1311, 2076; jaw, 260, 1071, 1574, 2233; kidneys, 139, 239, 453, 2384; lachrymal canaliculus, 1579; leg, 210, 1588, 2240; liver, 41, 186, 239, 240, 241, 1298; lungs, 94, 122, 136, 186, 206, 235, 241, 243, 248, 452, 453, 457, 868, 870, 1077, 1303, 1304, 1305, 1306, 1581, 1831, 1841, 2078, 2235, 2236; muscles, 234; neck, 252, 253, 441, 442, 444, 445, 446, 862, 1832, 1843; ovary, 95, 1313; pelvis, 210, 460, 461, 462; skin, 234, 1083, 1489, 1575; spine, 2071; stomach, 194, 458; teeth, 1843; testicle, 463; throat, 871; thyroid, 870; tongue 138, 2233; viscera, 1310; anaerobic actinomycetes in relation to, 2056; associated with black tongue, 397; bacteria in relation to, 2399; control of, 122, 123, 138, 139, 140, 240, 243, 253, 260, 433, 434, 441, 442, 443, 444, 445, 450, 452, 455, 458, 459, 460, 461, 609, 661, 667, 861, 862, 863, 871, 1071, 1077, 1296, 1297, 1300, 1303, 1304, 1305, 1574, 1578, 1579, 1581, 1589, 1591, 1592, 1832, 1835, 1837, 1838, 2071, 2076, 2078, 2233, 2235, 2240, 2384; by radiotherapy, 231; surgery, 2233, 2387; with sulphonamide, 195; definition of, restricted, 1076; diagnosis of, 459, 1305, 2236; by radiology, 332, 868; differentiation of, from maduromycosis, 319; etiology of, 1575; immunotherapy of, 1591, 1592; 'pneumonic type' of, 1841; review of, 858, 1083, 2399; tissue changes in, 1062.

— of the pig in Australia, 2399; U.S.A., 28.

— of sheep in U.S.A., 28.

Adrenocorticotrophin, use of, against *Nocardia asteroides*, 2238.

Aerosol, use of, against epidermophytosis, 380.

— AT, use of, against *Microsporum audouini*, 1471.

— OT, use of, against athlete's foot, and *Candida albicans*, 379.

Aerosporin, antagonism of, to dermatophytes, 1539.

Air, Basidiomycetes in the, in relation to asthma, 2400.

—, fungi in the, in Mexico City, 268; U.S.A., 681, 682.

Albucid, use of, against dermatomycoses, 620.
Alcaligenes, antagonism of, to *Trichophyton interdigitale* and *T. rubrum*, 1029.
Alcohol, toxicity of, to *Trichophyton mentagrophytes*, 817; use of, against *Aspergillus*, 1325; *Epidermophyton floccosum*, 822.
—, ethyl, use of, against athlete's foot, 377.
—, iodized, use of, against *Microsporum gypseum*, 2192.
— -soluble fungicides, technique for evaluating, 1790, 1791, 1792.
Aleurisma on man in France, 1484.
— *brasiliensis*, *Paracoccidioides brasiliensis* renamed, 2259.
— *carnis* on man in Germany, 2329.
— *strasburgiensis*, culture of, 1766.
Alkyldimethylbenzylammonium chloride, use of, against dermatomycosis, 400.
Allergic diseases, 1555; in Argentina, 199; Denmark, 1103; U.S.A., 40, 1330, 1331, 1332; classification of the histologic reactions in, 1102; dust and fungi in relation to, 1103; in relation to asthma, 1103, 1330, 1334.
— —, see also Asthma.
— immunity from fungal diseases in man, 656.
— response to *Actinomyces*, 2236, 2237; *A. madurae*, 271; *Alternaria*, 2247; *Aspergillus*, 2247; dermatomycoses, 680; factor r and ascorbic acid, 265; *Helminthosporium*, 2247; *Hormodendrum*, 2247; moulds, 885, 886, 887, 890, 1845, 1846, 1849, 2290; of man to oidiomycin and trichophytin, 90, 173; pathogenic fungi, 479, 655; to *Sporotrichum biparasiticum*, 271; *S. schencki*, 2036, 2084; *Trichophyton mentagrophytes*, 255.
Allergy in relation to mycoses, 889.
Allescheria boydii can infect the guinea-pig, 776; mouse, 848, 2487.
— — in soil in U.S.A., 2145, 2221, 2487.
— — on man, 778; in Brazil, 79, 85, 1057; U.S.A., 317, 318, 973, 1199, (?) 1935; the Virgin Islands, 525; allergic response in, 655; associated with mycetoma, 778, 973; meningitis, 1199; perfect state of *Scedosporium apiospermum*, 317; culture of, 1936, 1937; effect of *p*-hydroxymethyl benzoate on, 2020; radiate formation in, 650.
— —, nutrition of, 1728; synonymy of, 1934.
Allyl isosulphocyanate, see Allylsenerol.
Allylsenerol, toxicity of, to dermatophytes, 1023.
Alopecia areata of man, tinea capitis associated with, in U.S.A., 1751.
— parvimaculata, experimental reproduction of, by *Trichophyton mentagrophytes*, 160.
— — of man, *Microsporum audouini* associated with, in Czechoslovakia, 1771.
Alternaria in the air, 1335, 1336; in France, 1850; Mexico City, 268, 1600; Spain, 1847, 2085; U.S.A., 175, 681, 682, 1601, 1851.
— in dust in relation to asthma, 1103.
—, isolation of, from tumours in animals and man, 1929.
— on barley in relation to 'threshing disease' in Switzerland, 683.
— on man in Canada, 1334; Finland, 1455; U.S.A., 1333, 1562; allergic response to, 19, 480, 885, 886, 890, 1601, 1603, 2247; in relation to allergic diseases, 1333, 1334.
—, technique for preparing extracts of, 1338.
— *geophila* in the air in Spain, 1847; U.S.A., 1602.
— — in house dust in U.S.A., 1602.
— *humicola* in the air in Spain, 1847.
— *tenuis* on the dog in U.S.A., 472; in relation to allergic diseases, 1332; not the cause of canine eczema, 471.
[*Alternaria tenuis*] on *Tillandsia recurvata* in U.S.A., 1844.
— —, toxicity of, to rabbits, 1328.
Aluminium acetate, use of, against dermatophytes, 556, 2514.
Amino acids, effect of, on *Microsporum gypseum*, 2327.
Ammoniacal silver nitrate, use of, against *Aspergillus* spp., 1606; onychomycosis, 1263; *Trichophyton rubrum*, 1606, 1960, 1961.
Ammoniated mercury ointment, use of, against dermatophytes, 1002, 1230.
Ammonium compounds, fungicidal effect of, 2013; use of, against *Trichophyton gallinae*, 2365.
Amycen ointment, composition and use of, against dermatophytosis, 627.
Animals, dermatomycoses of, in France, 2019.
—, mycoses of, in England, 1954; Germany, 215.
Anthracnosis of man, moulds in relation to, 1849.
Anthralin cream, use of, against *Trichophyton rubrum*, 2208.
Antibiotic XG, effect of, on fungi pathogenic to man, 2026.
— 136, inhibition of pathogenic fungi by, 1067.
Antibiotics, acquired resistance to, by *Candida albicans*, 2458; effect of, on fungi pathogenic to man, 648, 1052; predisposing to attack by *Aspergillus*, 2402; *A. fumigatus*, 2401; *Candida*, 2468, 2483; *C. albicans*, 2291, 2292, 2293, 2469, 2470, 2474, 2477, 2482, 2483; *C. krusei*, 2469; mycoses, 2468.
Antibodies in man against yeast-like fungi, 322, 533.
Antihistamines, use of, against dermatophytes, 1994.
Antiphytin, composition and use of, against trichophytosis, 1774.
Antistine, use of, against dermatophytes, 1529, 1569.
Ants' nests, *Mucor* in, in Uruguay, 1642.
Arachniotus trisporus can affect man, 272.
Arthrographis langeroni on man in France, 550.
Ascorbic acid in relation to microbial allergy, 265.
Aspergillaceae on man associated with madura foot in France, 1196.
Aspergillosis of animals, 1050.
— of man, new form of, 2249.
Aspergillus can infect the guinea-pig, 2405.
— in the air in Brazil, 1848; France, 1850; Puerto Rico, 1605; Spain, 1847, 2085; Sweden, 1604; U.S.A., 175, 681, 1601, 1602, 1851.
— in dust, 1103; in Denmark, 1603.
— on animals, 1954; in Uruguay, 42.
— on birds, 1954.
— on man, 228; in Argentina, 11, 174; Australia, 687; Brazil, 85; Chile, 1710, 1941; Costa Rica, 67; Finland, 1455; France, 2249; Great Britain, 884; Greece, 200; Spain, 2405; Switzerland, 1100, 1856; Uruguay, 42; U.S.A., 124, 142, 332, 851, 879, 1198, 1283, 1326, 1559, 1562, (?) 1607, (?) 1611, 1829, 2042, 2402; Venezuela, 2220; allergic response to, 479, 886, 1603, 2247; affecting the brain and nervous system, 1100, 1607, 2402; ear, 228, 879; eye, 1611; lungs, 67, 124, 142, 332, 687, 1098, 2249; mouth, 228; nails, 11, 1326; nose, 228; throat, 228; associated with dermatitis, 2405; mycetoma, 85; tumours, 1429; control, 1559; diagnosis of, by radiology, 332; effect of hexylresorcinol on, 1292; isolation of, from sputum, 851; penicillin predisposing to attacks

by, 2402; preparation of extracts of, 1338; relation of, to asthma, 884; allergic diseases, 1334; bagasse disease, 1324; tissue changes in, 1062; review of, 852, 2368; simulation of lupus erythematosus by, 2086.
[*Aspergillus*] *amstelodami* on man in Germany, 2040.
— *awamori*, histaminolytic activity in, 1825.
— *brodeni* on man in France, 2248.
— *candidus*, histaminolytic activity in, 1825.
— — on domestic animals in Germany, 215.
— —, toxicity of, to rabbits, 1328.
— *chevalieri* on man in Argentina, 968.
— *clavatus*, antagonism of, to dermatophytes, 1033, 1034.
— *flavipes*, toxicity of filtrates of, to the rabbit, 66.
— *flavus* in the air in Mexico, 1600.
— — on birds in London, 2090.
— — on domestic animals in Germany, 215.
— — on man in Chile, 270; Great Britain, (?) 2226; U.S.A., 397, 685, 880, 1606; Venezuela, 180; associated with hemp workers' disease, 270; otomycosis, 397, 685, 880; control, 397.
— *fumigatus* can infect the guinea-pig, pigeon, rabbit, 689, 881, 1329.
— — in the air in U.S.A., 1602.
— — on *Aix sponsa* in U.S.A., 691.
— — on animals, 1954; in Germany, 215; effect of fungocin on, 2027; (?) transmission of, to man, 2374.
— — on birds, 1815, 1954; in Brazil, 1329; France, 690; Great Britain, 1058, 2090; Sweden, 1615.
— — on the bison in England, 883.
— — on cattle in Norway, 1857.
— — on the goat in India, 267.
— — on the hare in Sweden, 1615.
— — on mammals, 1815.
— — on man in Brazil, 638; France, 2249; Germany, 2040; Great Britain, 474, 2089, 2226, 2401; India, 267; Iraq, 1613; S. America, 1727; Scandinavia, 2227; Sweden, 1099; Uruguay, 1609; U.S.A., 133, 142, 397, 473, 475, 686, 851, 881, 1097, 1098, 1319, 1465, 1560, 1610, 1611, 1852, 2088, 2376; Venezuela, 180; affecting the bone, 2376; cerebrum, 2088; eye, 1611, 1852; heart, 1097; kidney, 1097; lungs, 686, 851, 881, 1097, 1098, 1099, 1319, 1609, 1610, 2089, 2249, 2401; urinary tract, 1613; associated with cerebro-meningeal mycoses, 2039; maxillary sinusitis, 440; onychomycosis, 477; otomycosis, 180, 397, 473, 638; pulmonary mycosis, 133, 142, 474; control, 397, 473, 686, 1099, 1613, 1852; culture of, 2089; identification of, 1060; in relation to vitamin B_1 synthesis, 1568; effect of fungocin on, 2027; penotrane on, 2053; para-bromo phenoxypropylthiocyanate on, 2224; sodium propionate derivatives on, 2377; penicillin predisposing to attacks by, 2401; radiate formation in, 650; serology of, 1289, 1823.
— — on the penguin in Australia, 1612.
— — on poultry in Eritrea, 689; Great Britain, 1058; India, 267; New Zealand, 1614; U.S.A., 430, 882.
— — on *Puffinus leucomelas* in Japan, 68.
— — on the rat in India, 267.
— — on shoes in U.S.A., 630.
— — on the turkey in Eritrea, 689.
— —, pathogenicity of, to rabbits, 1099.
— —, toxicity of, to the mouse, 2380; rabbit, 66.
— *glaucus* on animals in Germany, 215.
— — on man, 229; in Argentina, 190, 2309; France, 478; Italy, 2404; the Pacific, 1465; U.S.A., 473, 688, 880, 1606; affecting the bones, 2404; associated with asthma, 190, 478; eczema, 478; onychia, 688, 2309; otomycosis, 473, 1465; isolated from oral cavity, 229.
[*Aspergillus*] *herbariorum*, see *Aspergillus glaucus*.
— *luchuensis* in dust in U.S.A., 1337, 1602.
— *nidulans* can infect the guinea-pig and rabbit, 1096; pigeon, 1854.
— — on animals in Germany, 215.
— — on birds in London Zoo, 2090.
— — on man in S. Africa, 1325; U.S.A., 142, 476, 688, 1606; associated with onychomycosis, 476, 688; pulmonary mycosis, 142; otomycosis, 1325; in relation to vitamin B_1 synthesis, 1568.
— —, perithecia of, 1855.
— *niger* in the air in Mexico, 1600; Spain, 1847; U.S.A., 1602.
— — on domestic animals in Germany, 215.
— — on man in Argentina, (?) 2309; Great Britain, 2226; S. Africa, 1325; U.S.A., 89, 397, 473, 685, 880, 1465, 1708, 1726, 1853; U.S. Army, 1608; Venezuela, 180; affecting the foot, 1726; lung, 1708; associated with blepharitis and dacryocystitis, 89; mycetoma, 1726; onychia, 2309; otomycosis, 180, 397, 473, 685, 1325, 1465, 1608; control, 1708; culture of, 1921; effect of penotrane on, 2053; sodium propionate derivatives on, 2377.
— —, toxicity of filtrates of, to the rabbit, 66, 1328.
— *phoenicus*, histaminolytic activity in, 1825.
— *septatus* on man in France, 266.
— *sydowi* on man in Argentina, 11; U.S.A., 473, 2376.
— *terreus* on man in U.S.A., 1326.
— *tokelau* synonym of *Trichophyton concentricum*, 802.
— *versicolor* on man in Argentina, 11; Brazil, 1465; Italy, 2087.
Aspiration biopsy for diagnosis of *Histoplasma capsulatum*, 1680.
Asterol dihydrochloride, effect of, on dermatophytes, 2186, 2533; use of, against *Candida albicans*, 2219, 2508, 2530; dermatophytes, 2185, 2219, 2322, 2344, 2345, 2507, 2508, 2530.
Asthma of man in Denmark, 1103; England, 479, 884; France, 478; Jersey, 2479; Norway, 1705; S. Africa, 1846; Switzerland, 1856; U.S.A., 480, 1330, 1334; associated with *Actinomyces israeli*, 1563; *Aspergillus*, 190, 478; basidiospores, 2400; *Candida*, 1705, 2479; *Coccidioides immitis*, 1670, 1671, 1677; *Epidermophyton*, 190; moulds, 269, 270, 479, 480, 884, 888, 889, 1103, 1330, 1331, 1332, 1333, 1334, 1600, 1601, 1603, 1604, 1605, 1670, 1671, 1677, 1846, 1849.
Atabrine, effect of, on *Histoplasma capsulatum*, 2143.
—, toxicity of, to *Cryptococcus neoformans*, 1121.
Athlete's foot, see Tinea pedis.
Aureomycin, effect of, on *Actinomyces bovis*, 2068; *Candida*, 2292, 2304; *Cryptococcus neoformans*, 2256; *Nocardia*, 2068; *N. asteroides*, 1318, 1595, 2060; predisposing to attacks by *C. albicans*, 1942, 2291, 2474, 2476, 2482, 2483; use of, against *Actinomyces bovis*, 2077; *A. israeli*, 1833, 2075, 2388; actinomycosis, 2076, 2235; *Blastomyces dermatitidis*, 2408.

Bacillomycin, toxicity of, to dermatophytes, 1265, 1796.

Bacillus pyocyaneus, antagonism of, to *Microsporum canis* 1024.
— *subtilis*, antibiosis between, and fungi attacking man, 853, 854.
— *weidmaniensis*, effect of, on *Microsporum audouini*, 987.
Bacitracin, effect of, on fungi pathogenic to man, 1571.
Badhamia utricularis, toxicity of extract of, to *Cryptococcus neoformans*, 1116.
Bagasse disease of man in U.S.A., 1324.
Balanoposthitis caused by yeast-like fungi in France, 549.
Barium sulphide, use of, against *Microsporum audouini*, 2331.
Beauveria brumpti, see *Tritirachium brumpti*.
Beaver, *Haplosporangium parvum* on the, in U.S.A., 1673, 1895.
Benadryl, effect of, on skin tests with antigens, 2222; on *Trichophyton mentagrophytes*, 2204; use of, against epidermophytosis, 2175; *Trichophyton interdigitale*, 1529.
Benzoestrol, toxicity of, to fungi, 1256.
Benzoic acid, use of, against *Epidermophyton floccosum*, 1788; dermatomycosis in animals, 832, 1269; in man, 558, 826, 2208, 2210, 2358; with monochlormercuricarvacrol, 389.
Biocytin, effect of, on *Allescheria boydii*, 1937.
Biotin, effect of, on *Allescheria boydii*, 1936; *Candida albicans*, 2149; *Trichophyton album*, 350.
Birds, *Aspergillus fumigatus* on, in Brazil, 1329; Sweden, 1615.
Bison (*Bison bison*), *Aspergillus fumigatus* on the, in England, 883.
'Black tongue', *Candida* and *Cryptococcus neoformans* associated with, 705; in man in U.S.A., 1465.
Blakeslea trispora can infect the rabbit, 2051.
Blastocystis hominis a flagellate, 489.
Blastomyces on the dog in U.S.A., 164, 1112.
— on man in the Greek army, 1618.
— *brasiliensis*, see *Paracoccidioides brasiliensis*.
— *dermatitidis*, action of antibiotics on, 892; sulphonamides on, 183.
— — can infect the guinea-pig, 65, 152, 1191; mouse, 84, 1105, 1352, 2050.
— —, endotoxin in, 2380.
— —, factors affecting, 2439.
— — in soil in U.S.A., 2221.
— — on animals, 1815; (?) transmission of, to man, 2374.
— — on the dog in U.S.A., 29, 698, 1623, 2252.
— — on the horse, 1815; in U.S.A., 1107.
— — on man, 692, 694, 1810; in Argentina, 1344; Canada, 1342, 1356, 2093; Europe, 893; France, 481, 697; Germany, 2041; Great Britain, 20, 2226; India, 2099; Panama, 1923; (?) S. America, 1641; U.S.A., 51, 273, 382, 482, 693, 851, 891, 893, 1104, 1107, 1282, 1283, 1284, 1339, 1341, 1343, 1352, 1354, 1355, 1559, 1560, 1563, 1619, 1620, 1621, 1859, 1860, 1862, 2094, 2095, 2096, 2097, 2150, 2250, 2251, 2376, 2408, 2409, 2436; U.S. Army, 1234; the U.S. Navy, 278; affecting the abdomen, 1860; arm, 1343, 1860; bone, 1104, 1862; brain and nervous system, 692, 1104, 1341, 1352, 2094; epididymis, 273; eye, 693; face, 278, 891, 893; foot, 382, 1343, 1344; hands, 1343; hilar glands, 1619; internal organs, 1104; joints, 278, 893, 2376; kidneys, 1619; larynx, 891; legs, 1860; lung, 1354, 1619, 1862, 2215, 2251, 2376; neck, 1860; prostate, 1339; skin, 170, 1104, 1234, 1352, 1620, 1862, 2097, 2099, 2250; spleen, 1619; allergic reactions to antigen of, 1391; associated with cerebro-meningeal mycoses, 2039; cutaneous blastomycosis, 170; pulmonary mycoses, 2042; sarcoidosis, 1619; *Scopulariopsis americana*, 2407; blastomycin sensitivity in relation to, 1678, 2099, 2119; complement fixation test for, 1289, 1685, 2436; confusion between *Histoplasma capsulatum* and, 1354; with tuberculosis, 1862; control, 273, 278, 482, 893, 1284, 1341, 1343, 1355, 1559, 1620, 1827, 1859, 1860, 1862, 2096, 2097, 2250, 2408, 2409; culture of, 1104, 1168, 1928; diagnosis of, 1721, 2250; differentiation between *Paracoccidioides brasiliensis* and, 1641; effect of antihistaminic compounds on, 1569; copper-sulphonamide compounds on, 2223; fatty acids on, 1340; phenanthroline on, 2217; trimeton maleate on, 1819, 2098; rimocidin on, 2218; epidemiology of, 1054; fatty cytoplasmic inclusions in, 651; haemolysin from, 2092; identification of, 1060; inhibition of, by dithiocarbamyl hydrazine, 1111; by *p*-hydroxymethyl benzoate, 2020; isolation of, from sputum, 851, 1563, 2215; laboratory study of, 5; morphology of, 694; nuclear cytology of, 1106, 1345; physiology of, 61, 1622, 1861, 2379; production of ethylene by, 1108; extracellular starch by, 905; radiate formation in, 650; reaction between histoplasmin and, 1414; review of, 692, 852, 1342, 2095, 2368; rough-smooth variation in, 1346; serology and immunology of, 1182, 1183, 1184, 1186, 1570, 1621, 1816, 1823; tracing by radio-isotopes, 1572; tissue changes caused by, 658, 1062; tolerance of, to streptomycin sulphate, 855; toxicity of diethylstilbestrol to, 827; propamidine to, 616; sodium azide to, 426; yeast-like phase in, 1353, 1421, 1700.
[*Blastomyces*] *lanuginosa* on the mouse, in U.S.A., 1194.
Blastomycetes, staining of, by Dold's method, 1124.
Blastomycetin, effect of, on *Paracoccidioides brasiliensis*, 1349.
Blastomycin, comparison between histoplasmin and, 949, 1412; use of, against *Blastomyces dermatitidis*, 481, 697, 1859; reaction to, 1678, 2099, 2119.
Blastomycosis of man, 1555; in Argentina, 153, 275; Brazil, 277, 695, 1240; Denmark, 571; Germany, 1438, 2118; Greece, 200; India, 1489; Iraq, 1617; Italy, 1950; N. Africa, 1858; Pacific Islands, 225; Palestine, 276; the Tropics, 421; U.S.A., 109, 274, 332, 1616, 2096; affecting the arm, 1617; breast, 1438; cheek, 1616, 1858; ear, 1438; eye, 2118; kidneys, 200; hand, 1617; joints, 200, 1617; leg, 1438; liver, 1858; lungs, 200, 276, 277, 332, 1858, 1950; mouth, 153; nails, 1438, 1625; nose, 275, 1616; skeletal system, 274; skin, 1489; associated with *Candida*, 1438, 1950; *Cryptococcus*, 1626; *Geotrichum*, 21; *Torulopsis minor*, 1625; control, 275, 571, 1616, 1625, 2096; by roentgen rays, 109; definition of the term, 1625; diagnosis of, by radiology, 332; distribution of, 1282, 1283.
—, Brazilian or South American, see *Paracoccidioides brasiliensis*.
—, European, see *Cryptococcus neoformans*.
—, North American, see *Blastomyces dermatitidis*.
Blastomycotic intertrigo of man in Argentina, 1760.
Blepharitis associated with *Aspergillus niger*, 89.

Bodian silver, activated, use of, for staining pathogenic fungi, 416.
Borax-glycerine, use of, against *Candida albicans*, 770.
Boric acid, effect of, on growth of *Candida*, 1442; use of, against dermatomycoses, 556, 558, 818, 826; *Epidermophyton floccosum*, 1788; *Trichophyton granulosum*, 1773; *T. sulphureum*, 2362.
Boric-acid-salicylic powder, use of, against dermatophytosis, 1019.
Botryotrichum in the air in Spain, 1847.
Botrytis in the air in France, 1850; Mexico, 1600; Spain, 1847; Sweden, 1604; U.S.A., 681, 1851; allergic response to, 1604.
Branchiomyces denigrans on carp in U.S.S.R., 2213.
Brilliant green, toxicity of, to dermatophytes, 182; use of, against ringworm, 1255.
Bronchomoniliasis in laboratory animals, *Candida tropicalis* causing, 2146.
Bronchopulmonary mycosis, see Pulmonary mycosis.
Burow's solution, see Aluminium acetate.
Butyl 1-butanethiolsulphinate, use of, against tinea capitis, 2188.

Cadmium chloride, use of, against athlete's foot and *Candida albicans*, 379; epidermophytosis, 380.
Cadophora americana, see *Phialophora verrucosa*.
Calcium dimethyldithiocarbamate, fungistatic action of, 1260.
Calcium-zinc propionate powder, use of, against dermatophytosis, 1019.
Caldariomyces fumago, allergic response to, 887.
Camphor, use of, against tinea pedis, 826.
Camphor-phenol mixture, use of, against dermatophytes, 39, 392, 393.
Candida in the air in France, 1850; Spain, 1847, 2085; Sweden, 1604, 1711.
— on laboratory animals, 158, 760.
— on man, 1555; in Argentina, 196, 2302; Australia, 771, 1939, 1940; Brazil, 324, 325; Finland, 1455; France, 2304; Germany, 162, 1438; Great Britain, 20, 884, 2290, 2300; Italy, 705; Jersey, 2479; the Middle East, 555; New Guinea, 1939; Portugal, 760; Uruguay, 1976; U.S.A., 4, 142, 208, 767, 879, 1032, 1559, 1562, 2463; affecting the lungs, 324, 325, 767; mouth, 543; vagina, 208, 771; allergic response to, 479, 890, 1334; antibiotics in relation to, 1941, 2468, 2483; associated with asthma, 884, 2479; 'black tongue', 705; blastomycosis, 1438; intertrigo, 555; mycetoma, 85; otomycosis, 879; perlèche, 543; pulmonary mycosis, 20, 142, 196, 760; complement fixation tests in, 1203; control, 324, 325, 767, 777, 1559, 2290, 2304, 2479; with chiniofon, 196; culture of, 2300, 2304, 2462; differentiation of, 2462; effect of hexylresorcinol on, 1292; identification of, 1954; isolation of, 417, 499, 2462; from sputum, 1203, 2479; vagina, 2300; milk as a source of, 2479; *Mycocandida* preferred as a name for, 753; serology of, 1823, 1939, 2289; study on, 1552; *Syringospora* accepted as the valid name for, 750; technique for studying, 1722; tissue changes caused by, 658.
— on sheep in S. Africa, 2305.
— 103 VC on man in Spain, 1702.
—, taxonomy of, 750, 754, 755, 2302, 2454.
— *albicans* can infect the chick embryo, 772, 1200.
[*Candida albicans*] can infect the guinea-pig, 333, 537, 1950; rabbit, 333, 957.
— — on the mouse, 2050, 2380; enhanced virulence in, 2481.
— — on animals, public health significance of, 2374.
— — on birds, 1815.
— — on the dog in U.S.A., 1712.
— — on cattle in Germany, 327.
— — on the guinea-pig, 537.
— — on mammals, 1815.
— — on man, 228, 333, 759, 1553; in Algeria, 538, 1946; Argentina, 13, 81, 96, 330, 956, 1203, 1206, 1706, 1715, 2302; Australia, 758, 1939, 1944; Austria, 2524; Belgium, 1943, 1947; Brazil, 1211; Bulgaria, 2297; Canada, 128, 1218, 2472; Chile, 491, 1202, 1941; Cuba, 334, 540; Czechoslovakia, 1718, 2166; Finland, 951, 2152, 2154, 2234, 2298; France, 957, 1205, 2477; Great Britain, 326, 1433, 1439, 2226, 2291, 2292, 2401, 2469 (R.A.F.), 2474; Holland, 1435, 1448, 2155; India, 764, 1241, 1489; Indo-China, 2294; Iraq, 2296; Israel, 1437, 1703; Italy, 1431, 1716; Mexico, 176; New Zealand, 2460; Norway, 1705; Palestine, 955; Panama, 1061, 1923; Portugal, 1707; Scandinavia, 2227; Sweden, 1711, 2147, 2148, 2471; Switzerland, 770, 1719; Turkey, 2473; Uruguay, 328; U.S.A., 87, 115, 120, 134, 188, 321, 329, 332, 337, 338, 339, 340, 379, 382, 397, 535, 541, 542, 545, 546, 574, 618, 738, 761, 762, 763, 765, 768, 769, 846, 851, 958, 959, 960, 963, 986, 1004, 1010, 1021, 1031, 1204, 1263, 1282, 1283, 1434, 1440, 1465, 1538, 1559, 1560, 1563, 1634, 1672, 1678, 1701, 1704, 1708, 1712, 1792, 1908, 1945, 1949, 1960, 2042, 2150, 2151, 2156, 2176, 2219, 2288, 2293, 2299, 2301, 2337, 2355, 2376, 2455, 2470, 2475, 2508, 2530; U.S. Army, 570, 1748; Venezuela, 181, 544, 2220; acquired resistance of, to antibiotics, 2458; affecting the blood, 536; brain and nervous system, 115, 761, 762, 763, 958, 1672, 1908; buccal cavity, 228, 538, 764, 765, 768, 959, 1437, 1704, 1718, 1943, 2376; digestive system, 321, 758, 1435, 1944, 1949; ear, 188, 228; excretory system, 1435, 2469, 2475; eye, 535, 956, 960; face, 1206, 1704, 2219, 2315; feet, 382, 491, 570, 574, 1010, 1021, 1236, 1538, 1716, 1748, 2530; hands, 574, 1704, 1716, 2166; heart, 761, 2475; lungs, 128, 134, 332, 334, 337, 338, 538, 546, 957, 1202, 1439, 1562, 1678, 1718, 1945, 1950, 2147, 2215, 2234, 2296, 2297, 2298, 2471, 2472; nails, 13, 535, 574, 1218, 1241, 1263, 1440, 1448, 1703, 1716, 1718, 1960, 2301; nose, 228; reproductive system, 540, 541, 758, 959, 963, 1435, 1712, 1718, 2154, 2155, 2299, 2376; scalp, 535, 1704; throat, 181, 228, 326, 330, 397, 544, 545, 1433, 1440, 1703, 2291, 2292, 2296; generalized, 1908; antagonism of, to *Aspergillus flavus*, 830; *Bacillus subtilis*, 829; Actinomycetes, 1066, 1525; *Trichophyton rubrum*, 2157; antibiotics predisposing to attacks by, 1942, 2291, 2292, 2293, 2469, 2470, 2474, 2477, 2482, 2483; associated with asthma, 1705; aspergillosis, 1941; chromoblastomycosis, 96, 491; *Cryptococcus neoformans*, 1434; dermatomycoses, 977; gastroduodenal ulcer, 2152; idiopathic hypoparathyroidism, 340; intestinal diseases, 1431; other bronchial mycoses, 1203; *Pseudomonas aeruginosa*, 2301; 'thresher's lung', 2471; tuberculosis, 333, 1203, 1705, 2294; *Blastomyces dermatitidis* resembling, combined in-

fections of, with other fungi, 120; confused with allergy to denture base materials, 759; control, 330, 338, 379, 536, 542, 546, 618, 765, 768, 770, 958, 960, 963, 1021, 1031, 1202, 1204, 1263, 1437, 1440, 1505, 1538, 1559, 1703, 1716, 1718, 1827, 1947, 1960, 2151, 2155, 2156, 2219, 2296, 2299, 2355, (?) 2418, 2455, 2461, 2472, 2484, 2508, 2524, 2530, 2535; culture of, 1216, 1434, 1498, 1720, 2315, 2462, 2464; diagnosis of, 546, 756, 758, 1211, 1236, 1718, 1719, 1720, 1721, 1945, 2303, 2461; by radiology, 332; effect of antibiotic XG on, 2026; antistine on, 1569; Castellani's solution on, 1948; chloramphenicol on spread of, 1942; clavacin on, 1033; crystalline fradicin on, 1820; copper-sulphonamide compounds on, 2223; endomycin on, 2054; extract of *Thuja plicata* on, 649; fungicides on, 817; gentian violet on, 1948; gliotoxin on, 425; helixin on, 2457; indole-β-acetic acid on growth of, 1210; on morphogenesis of, 1938; methyl ester of paraben on, 2476; monochlormercuricarvacrolon on, 389; *Mycobacterium tuberculosis* culture extracts on, 2456; naphthogninone on, 2151; paraben on, 2476; *p*-hydroxy methyl benzoate on, 2020; penicillin on, 1443; penotrane on, 2053; polymyxins on, 2312; propionate derivatives on, 2377; rimocidin on, 2218; steroid hormones on, 1441; streptothricin on, 425; trimeton maleate on, 1819; tubercle bacillus concentration procedures on, 2215; ultrasonic waves on, 2459; ultra-violet rays on, 323; undecylenic acid on, 2216; ustilagic acid on, 2418; vioform on, 2151; epidemiology of, 1054; histology of infection by, 414, 651, 757, 1062; identification of, 176, 539, 540, 1060; isolation of, 540; from blood stream, 2475; body fluids, 2376; faeces, 1715, 2460; mouth, 1939, 1940, 1946, 2460; skin, 2460; sputum, 851, 1202, 1203, 1563, 1705, 1706, 1711, 1941, 1946, 1950, 2215, 2294, 2296, 2376, 2401, 2473; throat, 1939, 1940; morphology of, 1208; occurrence of, in the healthy mouth, 328; pathogenicity of, 87; physiology of, 751, 905, 1722, 2149, 2354, 2379, 2480; review of, 852, 2368; serology and immunology of, 64, 322, 533, 961, 962, 1186, 1289, 1570, 1816, 2092; symptoms of, resembling tuberculosis, 1201, 1945; technique for testing antibiotic activity of, 1785; transmission of, from the dog, 1712; toxicity of clavacin to, 612; crystalline tomatine to, 1212; parachlorophenol-α-glycerol ether to, 1030; salicylic acid and related compounds to, 1256; sodium azide to, 426; sulphanilamide to, 623; undecylenic acid to, 619; unable to infect guinea-pigs, 1191; use of, in testing fungicides, 1020; vitamin B_1 synthesis by, 1568.

[*Candida albicans*] on pigeons in Uruguay, 1952.

— — on poultry in England, 2159, 2160; New South Wales, 1207; New Zealand, 1614; U.S.A., 430.

— — on the rabbit, 537, 756, 758.

— — on the rat in France, 537.

— — on rodents in France, 773.

— — on turkeys in England, 1953, 1954, 2159, 2160; New South Wales, 1207.

— — var. *stellatoidea*, effect of penicillin on, 1443.

— *aldoi* on man in Norway, 1705.

— *blanci* on *Xerus getulus* in Algeria, 636.

— *brumpti* on the guinea-pig, 24.

— — on man in Algeria, 538, (?) 1946; Argentina, 464; Norway, 1705; Palestine, 955; affecting the scalp, 538; distinct from *C. parakrusei*, 750; identification of, 539; in relation to vitamin B_1 synthesis, 1568.

[*Candida brumpti*] on the rabbit, 24.

— — on the rat, 24; in France, 537.

— — on rodents in France, 773.

— *chalmersi* on man in Argentina, 2302; Italy, 1431; saprophytic nature of, 1553.

— *deformans* on man in Mexico, 176.

— *flareri* on man in Algeria, 1946; Argentina, 2302.

— — a white variant of *Rhodotorula mucilaginosa*, 750; tolerance of, for urea, 755.

— *guilliermondi* on man, 1829; in Argentina, 1203, 1706, 2302; Chile, 1941; Indo-China, 2294; Italy, 1431; Mexico, 176; Norway, 1705; Palestine, 955; Switzerland, 1973, 1974; affecting the feet, 1974; heart, 135, 448; associated with tuberculosis, 2294; combined infections of *Scopulariopsis brevicaulis* and, 1974; *Trichophyton interdigitale* and, 1974; effect of endomycin on, 2054; myosubtilin on, 2025; growth factors for, 751; identification of, 176; isolation of, from sputum, 1203, 1941, 2294.

— — on rodents in France, 773.

— —, toxicity of, to mice, 2380.

— — var. *nitratophila*, growth factors for, 751.

— *intermedia* on man in Argentina, 13, 2302; Chile, 1710; Switzerland, 1973, 1974; affecting the feet, 1974; nails, 13; combined infections with *Trichophyton rubrum*, 1974; of no medical interest, 750.

— *krusei* on man in Algeria, 1946; Argentina, 1203, 1706, 2302; Australia, 1939; Chile, 1941; Finland, 2152, 2154; Great Britain, 2226, 2469; Indo-China, 2294; Italy, 1431; Norway, 1705; Palestine, 955; Sweden, 766; U.S.A., 321, 336, 1562, 2176, 2475; affecting the heart, 2475; intestine, 321; kidneys, 2475; lungs, 336, 766, 2475; tonsils, 952; urinary tract, 2469; vagina, 2154; associated with gastro-duodenal ulcer, 2152; tuberculosis, 2294; culture of, 2464; effect of Congo red on, 953; esters of parahydroxy benzoic acid on, 2476; lactoflavin on, 953, 954; *Mycobacterium tuberculosis* culture extracts on, 2456; paraben on, 2476; sodium fluoride on, 953; endotoxin in, 2380; imperfect state of *Pichia*, 750; isolation of, from sputum, 1203, 1705, 1706, 1941, 1946, 2294; blood, 2475; saprophytic nature of, 1553; serology of, 322, 533, 1823; vitamin B_1 synthesis by, 1568.

— — on poultry in England, 2159.

— *lipolytica* on man in Argentina, 1203, 1706.

— *macedoniensis* on man in Norway, 1705; in relation to vitamin B_1 synthesis, 1568.

— *nigra canadensis* on man in Canada, 492, 493.

— *parakrusei* on the guinea-pig, 24.

— — on man, 64, 1553; in Algeria, 538, 1946; Argentina, 11, 13, 2302; Chile, 1941; Finland, 2154; Mexico, 176; Norway, 1705; Palestine, 199; U.S.A., 135, 171; affecting the heart, 135, 171, 448; mouth, 538; nails, 11, 13; skin, 538; vagina, 2154; associated with (?) *Acremoniella olivaespora*, 1946; identification of, 176; in relation to vitamin B_1 synthesis, 1568; serology of, 64, 961.

— — on the rabbit, 24; in France, 537.

— — on the rat, 24.

— — on rodents in France, 773.

— *parapsilosis* on man in Argentina, 1203, 1706, 2309; Germany, 2321; Indo-China, 2294; Switzerland, 1974; U.S.A., 321, 693; affecting the nails, 2309; intestine, 321; associated with tuberculosis, 2294; combined infections with

Trichophyton rubrum, 1974; control, 2321; isolation of, from sputum, 1203, 2294.
[*Candida*] *pelliculosa* approximates to *Torulopsis*, 750.
— *pseudotropicalis* can infect the mouse, 2380.
— — on man in Algeria, 538, 1946; Italy, 1431; Mexico, 176; Norway, 1705; Palestine, 955; U.S.A., 336; affecting the lungs, 336, 753; in sputum, 538.
— —, *Torula cremoris* identical with, 964.
— *pulcherrima* on man, amoeboid structures in, 2158.
— *robusta* on man, effect of boric acid on, 1442; histaminolytic activity in, 1825.
— *stellatoidea* can infect the chick embryo, 772; guinea-pig, 1950; mouse, 2380.
— — on man in Italy, 1950; U.S.A., 2176.
— —, serology of, 1823.
— — a valid species, 750.
— *suaveolens* on man in Argentina, associated with labial cheilitis, 161; *Neogeotrichum pulmoneum* (*Oidium brasiliense*) identical with, 750.
— *triadis* on man, 193; in Italy, 1431; Norway, 1705.
— *tropicalis* can infect the chick embryo, 772; mouse, 2380.
— — on laboratory animals causing bronchomoniliasis, 2146.
— — on man, 64, 1553; in Algeria, 1946, 2295; Argentina, 13, 2302; Australia, 1939; Chile, 1941; French Guinea, 2467; Indo-China, 2294; Italy, 1431; Norway, 1436, 1705; Palestine, 955; U.S.A., 1562, 2176, 2301; Venezuela, 2220; affecting the intestine, 1431; lungs, 2295, 2467; mouth, 1436; nails, 13, 1436, 2301; skin, 1436; toes, 1946; tongue, 1436; associated with *Cryptococcus*, 1946; tuberculosis, 2294; effect of boric acid on, 1442; *Mycobacterium tuberculosis* culture extracts on, 2456; epidemiology of, 1054; growth factors for, 751; in relation to vitamin B_1 synthesis, 1568; isolation of, from sputum, 1941, 1946, 2294; serology of, 64, 961.
— *truncata* on man in the Belgian Congo, 1445.
— *vulgaris*, effect of fungistatic agents on, 389; toxicity of parachlorophenol-α-glycerol ether to, 1030
— *zeylanica* on man from the oral cavity, 229.
— *zeylanoides* of man in Argentina, 13, 1706; Norway, 1705; affecting the nails, 13; isolation of, from sputum, 1203.
'Candidid' of the eyelids in Argentina, 956.
Candidosis, use of, to replace moniliasis, 2472.
Carbon dioxide snow, use of, against trichophytosis, 2197.
Carbon tetrachloride, use of, against *Microsporum audouini*, 1471.
Carbowax, use of, against dermatophytes, 1235, 1266, 1471, 1511.
— -sulphur, use of, against *Candida albicans*, 2484; dermatophytes, 2530.
Carp, *Branchiomyces denigrans* and *B. sanguinis* on, in U.S.S.R., 2197.
Castellani's paint, composition of, 629, 1204; use of, against *Candida albicans*, 1204, 1948; dermatophytes, 556, 629, 1777.
Castor canadensis, see Beaver.
Cat, actinomycosis of the, 164; in U.S.A., 25.
—, *Histoplasma capsulatum* on the, in Turkey, 1699; U.S.A., 1698.
—, *Microsporum canis* on the, 2531; in Brazil, 2512; England, 2511; Puerto Rico, 367; U.S.A., 37, 1992; transmission of, to man, 2325.
[Cat], *Trichophyton radians* and *T. quinckeanum* on the, 2531.
Cattle, *Actinomyces* on, in Algeria, 859.
—, — *aureus* on, in Algeria, 359.
—, — *bovis* on, 216; in Brazil, 2396; Canada, 676; France, 677; Germany, 2246; U.S.A., 2057, 2080; control, 2080, 2246, 2396.
—, — *dermatonomus* on, in New South Wales, 1598; Queensland, 1092.
—, — *israeli* on, in U.S.A., 2057.
—, actinomycosis of, 28, 1050; in Australia, bacteria in relation to, 2399; Portugal, 470; U.S.A., 28, 2080.
—, *Aspergillus fumigatus* on, in Norway, 1857.
—, *Candida albicans* on, in Germany, 327.
—, *Coccidioides immitis* on, 216; in U.S.A., 156, 1155, 1156, 1815; diagnosis of, 156.
—, *Cryptococcus* on, in U.S.A., 164.
—, histoplasmin sensitivity in, 2282, 2287.
—, *Rhinosporidium seeberi* on, in India, 783, 1815; Uruguay, 1815.
—, ringworm of, in Denmark, 1740; Fiji, 1543; U.S.A., 832.
—, *Sporotrichum* on, in Canada, 211.
—, *Trichophyton acuminatum* on, in France, 407.
—, — *album* on, in France, 1022.
—, — *discoides* on, in Algeria, 359.
—, (?) — *faviforme* on, (?) in U.S.A., 2514.
—, — — *album* on, in Brazil, 1039.
—, — *mentagrophytes* on, in France, 1022.
—, — *ochraceum* on, in Uruguay, 1242.
—, (?) — *tonsurans* on, in U.S.A., 1037.
—, *Trichosporon* on, in U.S.A., 1040.
—, Ustilagineous pneumonia of, in Bulgaria, 1830.
Cephalosporium on man, 256; in Brazil, 85, 1932; U.S.A., 204, 1319; allergic response to, 890; associated with mycetoma, 85, 1319; tuberculosis, 204.
— *acremonium* can infect the mouse and rat, 532.
— — on man in Algeria, 359; France, 532, 1294; Germany, 1550.
— *cordoniformis*, see *Hyalopus cordoniformis*.
— *granulomatis* on man, 778, 780.
— *recifei* on man in Brazil, 343.
— *spinosus*, see *Hyalopus spinosus*.
Cerbinol, use of, against cattle ringworm, 832.
Cerebro-meningeal mycoses, review of, 2039.
Cetyldimethylbenzylammonium chloride and cetyltrimethylammonium pentachlorophenate, fungicidal effect of, 2013.
Chaetomium in the air in U.S.A., 681.
Cheilitis, labial, associated with *Candida suaveolens*, 161.
Chiniofon, use of, against *Candida*, 196.
Chinosol, effect of, on *Cryptococcus neoformans*, 1866.
Chloramphenicol, effect of, on *Actinomyces bovis*, 1834, 2068; *A. israeli*, 1834, 2076, 2390; *Candida albicans*, 1942, 2291, 2469, 2483; *Coccidioides immitis*, 2126; *Cryptococcus neoformans*, 2256; *Nocardia* spp., 1834, 2068; use of, against bronchopneumonia, 2401.
Chlorine, toxicity of, to fungi, 1537.
Chlorisept, use of, against mycotic disease, 2000.
Chloromycetin, see Chloramphenicol.
Chlorophyll ointment, use of, against *Trichophyton*, 405.
Chlorotone, use of, against *Piedraia*, 1746.
Chromoblastomycosis of man, 283, 1810, 2037; in Australia, 711, 712, 1139; Brazil, 490, 498, 1240; Canada, 1653; Chile, 491; China, 2263; Costa Rica, 2262; S. Africa, 129; U.S.A., 1559; Venezuela, 166, 2220; affecting the feet, 2263; legs, 1139, 2263; skin, 2262; associated

with (?) *Acrotheca*, 2263; *Candida albicans*, 96, 491; *C. nigra canadensis*, 492; *Hormiscium dermatitidis*, 1803; *Hormodendrum*, 2262, (?) 2263; *H. algeriensis*, 284, 285; *Phialophora compacta*, 14, 1054; *P. pedrosoi*, 3, 96, 129, 286, 287, 288, 289, 494, 495, 496, 1054, 2262; *P. verrucosa*, 96, 283, 284, 285, 290, 496, 1054, 1559, 2220, 2262; *Rhodotorula*, 96, 491, 492; *Torula bergeri*, 1653; control, 2263; epidemiology of, 1054; etiology of, 1052; review of, 496; tinea nigra in relation to, 1803.

Chrysarobin, use of, against *Trichophyton schoenleini*, 360; chromoblastomycosis, 2263; ringworm, 1255, 2324.

Cibazol, use of, with trichophytin, 2003.

Cinnabar-sollux rays, use of, against tinea barbae, 1779.

Citric acid, use of, against *Microsporum*, 1511; *Trichophyton sulphureum*, 1511.

Cladosporium in the air, 2400; in Spain, 2085; U.S.A., 1601.

—, allergic response to, 479; in relation to asthma in England, 884.

— *herbarum* in the air in Spain, 1847.

— —, toxicity of, to rabbits, 1328.

— *mansoni* on man, relation of, to tinea nigra, 1041.

— *trichoides* on man in U.S.A., 2406; affecting the brain, control, and culture of, 2406.

— *wernecki* in soil in U.S.A., 2221.

— — on man in Brazil, 593, 1041; Panama Canal Zone, 1068; Puerto Rico, 1803; U.S.A., 1802; affecting the hand, 1041; associated with tinea nigra, 593; control, 2318; transference to *Hormodendrum* not accepted, 593.

Clavacin, toxicity of, to *Candida albicans*, *Geotrichum asteroides*, and *Trichophyton mentagrophytes*, 612; dermatophytes, 1033.

Claviformin, effect of, on pathogenic fungi, 648.

Cobalt, inhibition of cell division in *Candida* by, 1717.

Coccidioidal granuloma of man, see *Coccidioides immitis*.

Coccidioides immitis can infect *Cricetus frumentarius*, 506; guinea-pig, 714, 925, 1378; mouse, 73, 718; pig, 927.

— —, multiplication of, in chick eggs, 1666.

— — on animals (?), transmission of, to man, 2374; on captive wild animals in U.S.A., 1155.

— — on cattle, 216; in U.S.A., 1155, 1156, 1815.

— — on the dog in U.S.A., 1155.

— — on *Gorilla beringeri* in U.S.A., 298.

— — on man, 20, 91, 2037; in America, 1551; Argentina, 731, 1375, 1376, 1377, 1378, 1379, 1380, 2038, 2120; the Balkans, 715; Bolivia, 1375; Brazil, 2038; Germany, 1661; Great Britain, 1143, 2226; Honduras, 1924, 2424; Italy, 715; Mexico, 1886; N. America, 1376, 1377; Panama Canal Zone, 721; Paraguay, 1375, 1884; U.S.A., 15, 22, 75, 76, 77, 78, 86, 104, 127, 156, 207, 291, 292, 293, 294, 295, 296, 297, 299, 300, 332, 500, 502, 503, 504, 505, 506, 508, 717, 718, 719, 720, 723, 724, 726, 851, 923, 924, 926, 927, 932, 1140, 1142, 1145, 1146, 1148, 1149, 1150, 1151, 1152, 1154, 1155, 1157, 1282, 1283, 1373, 1374, 1382, 1383, 1386, 1387, 1388, 1389, 1390, 1392, 1559, 1560, 1561, 1657, 1658, 1660, 1663, 1664, 1665, 1667, 1668, 1669, 1672, 1859, 1883, 1887, 1888, 1889, 1892, 1893, 2038, 2042, 2121, 2122, 2123, 2124, 2125, 2264, 2266, 2267, 2426, 2427, 2430, 2432; U.S. Forces, 722, 922, 928, 930, 1141, 1153, 1234; Venezuela, 1858, 2038, 2220; accidental infection from, 1660; affecting the brain and nervous system, 506, 928, 1148, 1150, 1390, 1661, 1663, 1665, 1672, 2093; disseminated, 1153, 1881, 1887, 1889, 1893; digestive system, 77; feet, 1383, 2426; hands, 717, 1884; heart, 1889; joints, 86, 1383, 1388, 1887; liver, 1142; lung, 76, 127, 207, 297, 503, 504, 715, 731, 921, 930, 1143, 1148, 1152, 1153, 1154, 1373, 1374, 1383, 1657, 1658, 1661, 1667, 1668, 1883, 1886, 1887, 1888, 1893, 1894, 2122, 2215, 2267; peritoneum, 1383; reproductive system, 292, 1149, 1893, 2042, 2124, 2430; respiratory, 332, 2121; skeletal, 78, 717, 718, 1141; skin, 1154, 1234, 1664, 1669, 1887, 2430; spleen, 1142; allergic response to, 655, 1102, 1391, 1670; associated with tuberculosis, 1140, 1383, 1386, 1667, 2123, 2426; biology of, 1052; clinical aspects of, 926; coccidioidin sensitivity in relation to, 1349, 1384, 1385, 1391, 1415, 1671, 1677, 1678, 1882, 1886, 1887, 1890, 1891, 1917, 1919, 1923, 1924, 2119, 2120, 2133, 2425; coccidioidin test for, 721, 723, 724, 725, 1142, 1144, 1146, 1160; complement-fixation test for, 1289; contagiousness of, 1655, 1656; control, 300, 504, 726, 1154, 1386, 1559, 1893, 2263a, 2264; by surgery, 1657, 1658, 1868, 1888, 2124, 2426, 2432; culture of, 713, 714, 1376, 1377, 1383, 1654, 1822, 1892, 1894, 2428; cytological study on, 1654; diagnosis of, 156, 297, 332, 504, 505, 508, 921, 926, 1152, 1153, 1160, 1382, 1721, 2267; in sputum, 851; differential diagnosis of, 2122; distribution of, 291, 1282, 1283; effect of chloromycetin on, 2126; Congo red on, 853; cortisone on, 2429; lactoflavin on, 853; *para*-quinone on, 853; prodigiosin on, 1662; salicylic acid on, 1256; streptomycin on, 855, 1285; streptothricin on, 71; thiourea on, 1110; trimeton maleate on, 1819; tubercle bacillus concentration procedures on, 2215; endotoxin of, 2380; epidemiology of, 1054, 1379, 1380, 1670; erroneously diagnosed as tuberculosis, 1561; factors affecting, 713, 720, 1884; geographical distribution of, 104; histology of infection by, 651, 658, 1669, 1889; identification of, 417, 1060; identity of *Pseudococcidioides mazzai* with, 507; immunology of, 1816; infection by, through the respiratory tract, 924; types of, 719; infectious nature of, 1145, 1151; in relation to pulmonary disease, 1146, 1160, 1170; vitamin B_1 synthesis, 1568; isolation of, 417, 499, 506, 1168, 2265; from spinal fluid, 1665; sputum, 716, 2215; sputum exposed out-of-doors, 1656; morphology of, 291, 650, 1147; pathogenesis of, 923, 924; penicillin useless against, 299; production of an immunologically active polysaccharide by, 112; pulmonary calcifications in relation to, 1384; review of, 91, 715, 852, 929, 1659, 1668, 1883, 2266, 2368; similarity of, to *Histoplasma capsulatum*, 2127; to tuberculosis, 75, 1373, 1374, 2127; sphaerule antigen from, 2431; strains of, 1376, 1377, 1378; study of, by fluorescent microscopy, 1370; synonym of, 715; taxonomy and systematics of, 291, 1147; technique for protecting investigators against, 727; thyroidectomy in relation to, 925; tissue changes in, 1062; toxicity of salicil and related compounds to, 1256; transmission of, 1381; *Trichosporon proteolyticum* identical with, 931; X-ray studies on, 926, 932.

[*Coccidioides immitis*] on rodents in U.S.A., 30, 100, 116, 126, 513, (?) 1815; associated with *Haplosporangium parvum*, 513.

[*Coccidioides immitis*] on *Scapanus townsendii* in U.S.A., 1157.
— — on sheep in U.S.A., 1155.
— — var. *metaeuropea* synonym of *C. immitis*, 715.
Coccidioidin, preparation of, 1144. (See also *Coccidioides immitis* on man.)
Cod liver oil, fungicidal properties of, 1782; use of, against *Microsporum audouini*, 1246.
Cohnistreptothrix, see *Actinomyces*.
Combined fungous infections of man in U.S.A., 54.
Congo red, use of, against fungi on man, 853, 953.
Coniosporium corticale on man in U.S.A., 852.
Copper acetate, use of, against athlete's foot, 404.
— ethylenediamine sulphonamide complexes, fungicidal action of, 1827.
— -impregnated concrete floors in relation to athlete's foot, 1535.
— ionization bath, use of, against tinea pedis, 820.
— oleate, use of, against *Microsporum*, 810.
— sulphamerazine, effect of, on some fungi pathogenic to man, 2223; use of, against dermatophytosis, 404, 814; chromoblastomycosis, 2263; *Candida albicans* on poultry, 1207.
— sulphathiazole, use of, against pathogenic fungi, 2223.
— sulphonamides, use of, against *Cryptococcus neoformans*, 2102.
— undecylenate, use of, against dermatophytosis, 1530; *Microsporum audouini*, 795, 1259, 1471, 1530, 1755, 1783.
Corethropsis in the air in Spain, 1847.
Corneal ulcer, associated with (?) *Sporotrichum fonsecai*, 167.
Cortisone, use of, against *Coccidioides immitis*, 2429.
Coryza in poultry, *Penicillium* as the cause of, 2403.
Cottontails (*Sylvilagos nuttallii*), *Haplosporangium* on, in U.S.A., 1895.
Cow, see Cattle.
Cozsal, use of, against *Microsporum equinum*, 633.
Cream of tartar, effect of, on *Trichophyton schoenleini*, 2007.
Creolin, use of, against dermatophytes, 834.
Cresatin, use of, against *Trichophyton rubrum* and *T. interdigitale*, 816.
Cresol, use of, against *Trichophyton gallinae*, 835.
Cricetus frumentarius, *Coccidioides immitis* can infect, 506.
Crill, use of, against dermatophytes, 1511.
Cryptococcus in soil in U.S.A., 2221.
— on the cow in U.S.A., 164.
— on man, 2454; in Algeria, 1946; Argentina, 1706; France, 1626; Great Britain, 2300; Palestine, 955; U.S.A., 142, 321, 1628; affecting the lungs, 142, 1626; skin, 1627; associated with *Candida tropicalis*, 1946; culture of, 2300; isolation of, from intestinal tract, 321; purulent lymph nodes, 164; sputum, 1706; vagina, 2300.
— on the mouse and rat in U.S.A., 1194.
—, taxonomy and nomenclature of, 1624.
— *farciminosus*, see *Histoplasma farciminosum*.
— *glabratus* on man in U.S.A., 1639.
— *hominis*, see *C. neoformans*.
— *lacrymeatus* on the horse, 1050.
— *mirandei* on the horse, 1050; not a valid species, 707.
[*Cryptococcus*] *neoformans* can infect the guinea-pig, 899, 1109, 1120, 1865; laboratory animals, 1870; the mouse, 83, 899, 1109, 1120, 1359, 1872, 2050, 2410; the rat, 1115, 1118.
— —, immunization studies of, on mice, 62.
— — in chick embryos, 1864.
— — in milk in Scotland, 1865.
— — in soil, variation in, 2410.
— — on animals, 703, 1815; (?), transmission of, to man, 2374.
— — on the horse, 1815.
— — on man, 1555, 1810, 1864, 2140; in Argentina, 485; Australia, 281, 484; Austria, 1866; Brazil, 46; Chile, 1869, 1870; China, 1357; France, 704, 899, 900, 1113, 1114, 1120, 1366, 1638; Germany, 163, 2100; Great Britain, 20, 125, 279, 1117, 1361, 2226; India, 2412; Indonesia, 897; Israel, 1365; Italy, 705, (?) 2101; New South Wales, 1627; Peru, 2415; Scandinavia, 2227; S. Africa, 103, 486, 706, 898; Sweden, 1119, 2112; Transvaal, 906; U.S.A., 62, 83, 142, 159, 280, 282, 332, 483, 487, 700, 702, 846, 851, 879, 901, 902, 903, 910, 1118, 1192, 1282, 1283, 1284, 1367, 1411, 1434, 1559, 1560, 1563, 1631, 1632, 1634, 1635, 1636, 1867, 1908, 2042, 2104, 2105, 2108, 2109, 2110, 2253, 2255, 2256, 2376, 2410, 2411, 2413, 2414, 2416, 2417; U.S. Army, 896, 1868; Venezuela, 2220; *Absidia corymbifera* wrongly identified as, 1958; affecting the brain and nervous system, 103, 125, 159, 280, 282, 484, 486, 706, 896, 898, 899, 901, 906, 1113, 1117, 1120, 1357, 1361, 1627, 1631, 1634, 1635, 1638, 1867, 1908, 2106, 2108, 2109, 2110, 2112, 2253, 2255, 2256, 2412, 2413, 2414, 2415, 2416; ear, 879; eye, 1632; face, 1636, 2112; internal organs, 1192, 1411, 1908; legs, 279, 280; lungs, 142, 332, 486, 896, 898, 902, 903, 1284, 1627, 1868, 1869, 1870, 2112, 2212, 2417; scalp, 1119; skeletal system, 2104, 2105, 2108; antagonism of *Streptomyces griseus* to, 699; Actinomycetes to, 1066, 1525; associated with 'black tongue', 705; diabetes, 2100; Hodgkin's disease, 1867; capsule of, 650, 1209, 1122, 1871, 1872, 2111; chemical relations of, 1363; control, 159, 279, 1118, 1284, 1359, 1367, 1559, 1827, 1866, 2100, 2106, 2108, 2109, 2256, 2413, 2414, 2416; by surgery, 2417; culture of, 1357, 1361, 1366, 1629, 1631, 1822, 1871, 2106, 2110, 2114, 2411; diagnosis of, 1357, 1631, 1632; by radiology, 332; effect of antibiotic XG on, 2026; antihistaminic compounds on, 1569; body temperature on, 1360; chinosol on, 1866; copper sulphonamides on, 2102, 2223; crystalline fradicin on, 1820; gentian violet on, 1361; gliotoxin on, 425; hyaluronidase on capsule of, 1366; lactoflavin on, 1113; methyl benzoate on, 2020; myosubtilin on, 2025; para-bromo phenoxypropyl thiocyanate polymyxins on, 2312; *p*-hydroxy methyl benzoate on, 2020; penicillin on, 1866; raphanin on, 1793; rimocidin on, 2218; soluthiazole on, 1361; some plant extracts on, 2323; steroid hormones on, 1441; streptocin on, 1114, 1115, 1866; streptothricin on, 425, 1109; trimeton maleate, 1819; tubercle bacillus concentration procedures on, 2215; ustilagic acid on, 2418; vitamin B complex on, 1863; yatren on, 1866; endotoxin in, 2380; geographical distribution of, 1282, 1283; haemolysin from, 2092; histology of, 651; identification of, 1060; inhibition of, by dithiocarbamyl hydrazine, 1111; by thiourea, 1110, 1111; by extracts

of *Badhamia* and *Fuligo*, 1116; of *Thuja*, 649; hydrogen-ion concentration in relation to, 2106; isolation of, 1168; from blood, 1866; blood serum, 2255; cerebrospinal fluid, 1563, 1627, 2106, 2110, 2376; duodenal fluid, 1866; faeces, 1866; lumbar fluid, 1365; spinal fluid, 2255; sputum, 851, 1866, 1870, 2215; urine, 2255; leucocytal migration inhibited by a capsular polyoxide of, 2254; life-cycle of, 700; monograph on, 909; (?) new strain of, 1367; polysaccharide fractions of, 1627, 2411; production of crystalline amylose by, 1362; extracellular starch by, 701, 905; reaction between antisera and capsules of, 1358; review of, 852, 1815, 1867, 1868, 1869, 2103, 2104, 2105, 2368; serology and immunology of, 1364, 1633, 1637, 1816, 1823; systemic infection with, 910; technique for diagnosing, 1721; for studying, 1722; tissue changes in, 1062; toxicity of actidione to, 908; atabrine to, 1121; lactoflavin to, 953; variation in, 1637, 1638, 2113; vitamin B_1 synthesis by, 1568.

[*Cryptococcus*] *pinoysimilis* on man in Italy, 907.

— *psychrofilicus* on man in Indian Army, 895.

— *uvae* on man in Italy, 907.

Ctenomyces granulosus, see *Trichophyton granulosum*.

— *mentagrophytes*, see *Trichophyton mentagrophytes*.

Culture media and methods, see Technique.

Cuprammonium hydroxide in carbowax, use of, against *Microsporum audouini*, 1984.

'Curamycon', use of, against *Trichophyton mentagrophytes*, 1526.

Curvularia trifolii in relation to allergic diseases of man, 1332.

l-Cystein hydrochloride, effect of, on some fungi pathogenic to man, 2318.

Cystitis of man in U.S.A., associated with *Candida albicans*, 2288.

D25 and D26, use of, against mycoses of man, 2321.

Dacryocystitis associated with *Aspergillus niger*, 89.

DDT, use of, against *Histoplasma farciminosum*, 2257.

Debaryomyces neoformans, see *Cryptococcus neoformans*.

Decupryl, use of, against *Microsporum audouini*, 2185, 2343.

Dermatitis of man, of the feet and hands, in U.S.A., 354; due to *Rhodotorula*, 1732; industrial, in U.S.A., 559; survey of recent literature on fungi in relation to, 357.

— of sheep in India, 1597.

Dermatology, French treatise on, 1049; in British Army, 562, 566; modern trends in, 1053.

Dermatomycoses, see Dermatophytosis.

Dermatophagoides scheremetewskyi on man, associated with *Trichophyton rubrum* in U.S.A., 2360.

Dermatophytes, antagonism between, 1014.

— of man, 1810, 1812, 1996, 2310; in the Belgian Congo, 1486, 1487; Canada, 2322; Finland, 976; Great Britain, 2226; New Zealand, 1460; Spain, 2168, 2169, 2333, 2334; on army personnel in Japan, 1222; affecting the digits, 1460; hands and feet, 2528; nails, 1812; skin, 1812; biology of, 2174; British research on, 2225; cattle ringworm in relation to, 1740; classification of, 110, 2173; control, 2313, 2322, 2528; culture of, 1493, 1494, 1996, 2317, 2333; on blotting-paper, 579; diagnosis of, 1060, 2161, 2162, 2163, 2163, 2542; effect of p-chlorophenoxetol and propylene phenoxetol on, 2018; general paper on, 2493; human serum as medium for, 2165; isolation of, 578, 2168; from soil, 2544; susceptibility factors in, 1733; viability of, 2543.

Dermatophytid of man in U.S.A., 227; U.S. Army, 1234; diagnosis of, 227; relation of, to the so-called 'mosaic fungus', 353.

Dermatophytoses of animals, studies on, 831.

Dermatophytosis of man, 402, 405, 1251, 1252, 1253, 1254, 1555, 1810, 1813, 1818, 1962; in Austria, 2524; Brazil, 1965, 2021; British Army, 567, 1035; China, 1357; Czechoslovakia, 2166; Denmark, 571, 627; France, 2008; Germany, 1322, 1528, 2015, 2319, 2328, 2330, 2528; Great Britain, 423, 573, 576, 2170; Holland, 1797; India, 1035; New Zealand, 1233; the New Zealand Forces, 812; Panama, 218; S. Pacific, 427, 607; Spain, 2354; Switzerland, 1268, 1973, 1974; the Tropics, 203; Tunisia, 562; U.S.A., 224, 356, 380, 572, 622, 1018, 1267, 2213, 2530; U.S. Army, 556, 568, 569, 1018, 1234, 1748; U.S. Forces, 813, 814, 818; U.S. Navy, 177, 358, 557, 558, 585, 1019; U.S.S.R., 808; affecting the feet, 812, 813, 814, 818, 1268, 1760, 1791, 1797, 1965; fingers, 2167; hands, 572, 1965; skin, 1234; allergy and immunity in, 680; control, 38, 43, 424, 427, 556, 557, 558, 568, 569, 571, 604, 607, 621, 622, 808, 813, 814, 818, 826, 1019, 1035, 1251, 1252, 1253, 1254, 1262, 1267, 1268, 1322, 1501, 1526, 1527, 1528, 1530, 1775, 1776, 1778, 1796, 1797, 1965, 1994, 2001, 2008, 2021, 2328, 2330, 2354, 2524, 2530; diagnosis of, 1994; differentiation of dermatitis from, 402; 'mycids' in, 2320; as an occupational disease, 560, 2319; recent literature on, 1962; 'repeat' cultures of, 1769; survey of, 223, 424; technique for testing remedies for, 1791, 1792; transmission of, from animals, 576.

Dermecyl, use of, against *Trichophyton interdigitale*, 2358.

Desenex ointment, composition of, and use of, against dermatophytes, 1267, 2208.

'Dhobie itch' in the U.S. Army, 400, 401; *Shorea robusta* juice as the cause of, 401.

Diabetes, *Cryptococcus neoformans* associated with, 2100.

Diacin, effect of, on *Phialophora pedrosoi*, 1827.

'Diasone', use of, against actinomycosis, 1071, 1832.

Diazil, use of, against *Actinomyces*, 2239.

Dibenzo-thio-indigo, use of, against tinea pedis, 819.

Dibromosalicil, fungistatic properties of, 1256.

2, 3-dichloronaphthaquinone, toxicity of, to dermatophytes, 1206.

2, 4-dichlorophenoxyacetic acid, effect of, on fungi, 1514.

Dieselene, use of, against *Microsporum equinum*, 633, 634.

Diethylstilbestrol, effect of, on fungi, 827, 1256, 1441, 1502; on *Microsporum audouini*, 1801.

Di-nitro-cyclohexylphenol (DN), use of, against tinea pedis, 813.

Dinitroso-cyclohexylphenol, fungicidal effect of, 2013.

Diodoquin, use of, against tinea pedis, 1019.

Dioxydichloridediphenylsulphide, effect of, on dermatophytoses, 1796; technique for evaluating, 1780.

Dioxyphenylmethanes, chlorated, effect of, on dermatophytoses, 1796.
Dioxythranol, use of, against dermatophytoses, 217.
Diphenylpyraline, effect of, on dermatophytes, 1569; use of, against dermatophytoses of man, 2355.
Disodium ethylene bisdithiocarbamate, fungistatic action of, 1260.
Dithiocarbamic acid derivatives, effect of, on bacteria and fungi, 1293.
Dithiocarbamyl hydrazine, toxicity of, to various fungi, 1111.
DL-inositol, effect of, on *Trichophyton discoides* and *T. ochraceum*, 1242.
Dog, *Actinomyces* on the, in U.S.A., 164.
—, — (?) *bovis* on the, in U.S.A., 2083.
—, actinomycosis of the, in Egypt, 2398; Great Britain, 1320, 2397; France, 2244; U.S.A., 25.
—, *Alternaria tenuis* in relation to eczema of the, 471.
—, *Blastomyces* on the, in N. America, 1112; U.S.A., 164.
—, — *dermatitidis* on the, in N. America, 1623; U.S.A., 29, 698, 2252.
—, *Coccidioides immitis* on the, in U.S.A., 1155.
—, *Histoplasma capsulatum* on the, 1694; in Brazil, 735; N. America, 1815; Panama Canal Zone, 747; U.S.A., 27, 316, 523, 748, 749, 950, 1058, 1193, 1695, 1696, 1697, 1698; affecting the intestines, 748; liver, 749; spleen, 749; histoplasmin sensitivity to, 1695, 1696.
—, *Microsporum audouini* on the, in U.S.A., 2182.
—, — *canis* on the, 2531; in England, 2511.
—, *Pityrosporum ovale* on the, 2491.
—, ringworm on the, in Britain, 1038.
—, *Trichophyton caninum* on the, 2531.
—, — *gallinae* on the, 148.
—, — *mentagrophytes* on the, 2531.
Donkey, *Histoplasma farciminosum* on the, 1815.
Duponal, use of, against seborrhoeic dermatitis, 558.
Dyshidrosis of man in Hungary, 1966.

Eczema of man in Germany, 2328; Spain, 2354.
— marginata associated with *Trichophyton rubrum*, 193.
Eggs, *Aspergillus* on, 2464.
—, *Cryptococcus neoformans* in embryos of, 1864.
—, fungi on embryonated, effect of ethyl vanillate on, 2466.
—, use of, for culture of *Candida albicans* and *C. krusei*, 2464; *C. stellatoidea*, 2465; *Coccidioides immitis*, 1822, 2428; *Histoplasma capsulatum*, 1822, 1921; various fungi, 1822, 1921.
Elkosin, use of, against actinomycosis, 861, 1077, 2239.
Empyema caused by *Aspergillus fumigatus*, 1319; *Nocardia asteroides*, 1318.
Endocarditis, mycotic, of man in U.S.A., 230, 2272; associated with *Candida albicans* in U.S.A., 2475; *C. parakrusei*, 171; *Histoplasma capsulatum*, 184, 2272.
Endodermophyton, see *Trichophyton*.
— *concentricum*, *E. indicum*, and *E. tropicalis*, see *Trichophyton concentricum*.
Endomycin, effect of, on pathogenic fungi, 2054; production of, from *Streptomyces*, 2054.
Ependymitis, *Ustilago maydis* inducing, in U.S.A., 654.
Epicoccum in the air in U.S.A., 681, 1851.
Epidermophytids of man in U.S.A., 2175.
Epidermophyton on man, 1810, 1813, 2173, 2174; in Argentina, 190, 198; Brazil, 1240; Czechoslovakia, 1515; Germany, 1458, 1995, 2320; Holland, 1797; India, 399; U.S.A. 1775, 2315; affecting the feet, 1236, 1515, 2315; fingers, 1995; associated with asthma, 190; dermatophytosis, 97, 198, 1252; culture of, on hair, 1764; control, 1292, 1515, 1995, 2359; diagnosis and symptomatology of, 1236; epidemiology of, 1054; histology of, 1062, 1458; in relation to dermatomycoses, 977; use of, in testing fungicides, 1020.
— *floccosum*, antagonism of, to dermatophytes, 1014.
— — can affect the monkey, 182.
— — on animals, effect of fungocin on, 2027.
— — on leather, toxicity of fungicides to, 1026.
— — on man, 2541; in Algeria, 1221; Australia, 2500; Austria, 201; Belgian Congo, 1996; Brazil, 1965; Canada, 348, 1218; China, 1237; Czechoslovakia, 2166; Denmark, 1740; the Far East, 798; France, 2513; Germany, 2319, (?) 2330; Great Britain, 575, 1237, 1971, 2012, 2226; Hungary, 2359; India, 98, 399, 822, 1237, 1241; Malaya, 563, 1745; New Zealand, 1233, 1460; N. Ireland, 1971; Switzerland, 1973, 1974; the Tropics, 82; Uruguay, 1976; U.S.A., 120, 356, 397, 403, 574, 618, 816, 821, 1004, 1010, 1012, 1021, 1031, 1032, 1237, 1263, 1465, 1538, 1792, 2002, 2176, 2208, 2338, 2355, 2530; U.S. Army, 570, 1013, 1748; U.S. Navy, 565; U.S.S.R., 789; Venezuela, 2220; affecting the digits, 1460; face, 1218; fingers, 2166; foot, 403, 493, 563, 570, 574, 798, 1010, 1012, 1013, 1021, 1032, 1976, 2002, 2355, 2500; hair, 2542; hand, 403, 574, 1021, 1976, 2002, 2268; inguinal fold, 397, 563; nails, 574, 1241, 1263; scalp, 2177; skin, 1218, 1221, 1237, 1976, 2530; combined infections of, with other fungi, 120; with *Trichophyton rubrum*, 1974, 2002; control, 397, 399, 618, 816, 822, 823, 827, 828, 1004, 1021, 1028, 1030, 1031, 1032. 1263, 1505, 1538, 1745, 1788, 1827, 1965, 2208, 2322, 2330, 2355, 2359, 2530; culture of, 2208, 2533; effect of antibiotic XG on, 2026; cod liver oil and fatty acids on, 1782; copper-sulphonamide compounds on, 2223; culture filtrates of *Aspergillus clavatus* on, 1034; fungocin on, 2027; myosubtilin on, 2025; parabromo phenoxypropyl thiocyanate on, 2224; penotrane on, 2053; plant extracts on, 2323; some antihistaminic compounds on, 1569; spergon on, 2053; trimeton maleate on, 1819; vitamin K on, 2024; histology of, 651; in relation to industry, 356; isolation of, 578, 786; keratin digestion by, 2542; polymorphism in, 2513; reaction of, to fungistatic agents, 389; serology of, 577; toxicity of antibiotics to, 649, 828, 830; dithiocarbamyl hydrazine to, 619; hydroxyproline to, 823; salicylic acid and related compounds to, 1256; undecylenic acid to, 619; transmission of, 1787; virulence of, 2310.
— — on shoes in U.S.A., 630, 2497.
— *gallinae*, see *Trichophyton gallinae*.
— *inguinale*, see *Epidermophyton floccosum*.
— *rubrum*, see *Trichophyton rubrum*.
Erasmus Wilson's Diseases of the skin, centenary of, 978.
Erythrasma of man, 1555; Germany, 2328.
Ether, use of, against *Blastomyces dermatitidis*, 482.
Ethyl alcohol, see Alcohol.

[Ethyl] chloride, use of, against dermatomycoses, 390, 624.
Ethylmercurithiosalicylic acid, toxicity of, to *Microsporum audouini* and *Trichophyton violaceum*, 2529.
Ethyl paraoxybenzoate, effect of, on *Trichophyton interdigitale*, 1786.
— —, use of, against dermatophytosis, 627.
— senevol, toxicity of, to dermatophytes, 1261; *Microsporum audouini*, *Trichophyton crateriforme*, and *T. interdigitale*, 1261.
— vanillate, effect of, on fungi on embryonated eggs, 2466; use of, against *Coccidioides immitis*, 2263a; *Histoplasma capsulatum*, 2141, 2142; micro-organisms in foodstuffs, 2142.
Ethylene, production of, by *Blastomyces dermatitidis*, *Histoplasma capsulatum*, and *Paracoccidioides brasiliensis*, 1108.
— oxide, use of, for sterilizing leather, 2497.
Eumadurella, a subdivision of *Madurella*, 777.
Eumycin, toxicity of, to *Actinomyces* and dermatophytes, 828.
Eurotium herbariorum, see *Aspergillus glaucus*.
Equidae, see Horse.
'Factor r' in relation to microbial allergy, 265.
Fatty acids, fungicidal properties of, 1257, 1521, 1526, 1527, 1782.

Favus of man in Algeria, 1481; Argentina, 2311; Germany, 2320, 2321; (?) Portugal, 2335; Uruguay, 1976; U.S.A., 1473, 1477, 1478, 1753, 1754.
—, see also *Trichophyton quinckeanum*, *T. schoenleini*.
Ferret, *Histoplasma capsulatum* on the, in U.S.A., 27.
Ferric dimethyldithiocarbamate, fungistatic activity of, 1260.
Ferrithioformiate, use of, against *Candida albicans* and *Trichophyton griseiforme*, 2524.
Fish, see Carp.
Flamingo (*Phoenicopterus*), *Aspergillus fumigatus* on the, in France, 690.
Flies, biting, spread of *Histoplasma farciminosum* by, 2257.
Fonsecaea compactum, see *Phialophora compactum*.
— *dermatitidis*, see *Hormiscium dermatitidis*.
— *pedrosoi*, see *Phialophora pedrosoi*.
Foodstuffs, micro-organisms in, 2142.
Foot powder U.S.N., use of, against dermatophytes, 1019.
Formaldehyde, toxicity of, to *Microsporum audouini*, *Trichophyton schoenleini*, and *T. violaceum*, 2529.
—, use of, against dermatophytosis, 814; fungi on shoes, 630; *Microsporum equinum*, 834; *Trichophyton equinum*, 834; *T. gallinae*, 835; *Trichophyton* on leather, 631; *T. schoenleini*, 834.
Formic acid, toxicity of, to *Trichophyton*, 1027.
Fowl, *Aspergillus fumigatus* on the, in Eritrea, 689; Great Britain, 1058; India, 267; U.S.A., 430, 882; affecting the eye and lung, 882.
—, *Candida* on the, 158.
—, — *albicans* on the, in New South Wales, 1207; U.S.A., 430; control, 1207.
—, *Geotrichoides* on the, 158.
—, histoplasmin sensitivity in, 2282.
—, *Microsporum gallinae* on the, see *Trichyophyton gallinae*.
—, *Trichophyton gallinae* on the, in French Cameroons, 800; Great Britain, 1058; New South Wales, 835; U.S.A., 430.
—, see also Poultry.
Fradicin, effect of, on some pathogenic fungi, 1820; production of, from *Streptomyces fradiae*, 1820; use of, against *Coccidioides immitis*, 2263a.
Fuligo, toxicity of extract of, to *Cryptococcus neoformans*, 1116.
Fungetol, use of, against *Microsporum gypseum*, 2192.
Fungi in the air in U.S.A., 682.
— on animals in the British Isles, 1554, 1557, 1558; review of, 2368.
— on man in Austria, 201; the British Isles, 1554, 1557, 1558, 2226; Italy, 422; allergic immunity from, 656; auxanographic, study on, 2049; biology of, 1052; classification of, 657; conference on, in Mexico, 660; descriptive and taxonomic notes on, 179; geographic distribution of, 1052; methods of diagnosing, 2314; role of, in vesicular eruptions of the hands in Canada, 353; technique for diagnosing pathogenic, 1556; technique for obtaining, from skin, 2372; tissue changes in, 658; use of radio-active isotopes for the study of, 1573; vitamin deficiencies of, 1821.
Fungicides, 1826; effect of, on fungi pathogenic to man, 60; evaluation of, 2010, 2011, 2013, 2313; technique for the laboratory assay of, 1065, 2371; for testing, 1020, 1518, 2052; trichophytin in relation to, 2313.
Fungicidin, production of, from *Actinomyces*, 1872; use of, against *Cryptococcus neoformans*, and *Histoplasma capsulatum*, 1872.
Fungocin, effect of, on pathogenic fungi, 2027; production of, from *Bacillus subtilis*, 2027.
Fungus antigens, 1810.
Furazin, effect of, on *Sporotrichum epigaeum*, 1784.
Fusarium in the air in Brazil, 1848; France, 1850; Spain, 1847.
— in dust in relation to asthma, 1103.
— on man in U.S.A., 1562; allergic response to, 886, 1603, 1846; technique for preparing extracts of, 1338; wrongly identified as *Trichophyton rosaceum*, 382.

Gamma-hexane, effect of, on *Candida*, 1702.
Gastric mucin, see Mucin.
Gentian violet, use of, against *Candida albicans*, 1703, 1948; *Cephalosporium*, 204; *Cryptococcus neoformans*, 1361; dermatophytes, 182, 371, 1965.
Geotrichoides on laboratory animals, 158.
— on man, 2467.
Geotrichum on man, 2133; in Mexico, 21; Norway, 1955; U.S.A., 321, 774, 851, 1283, 1559, 1562, 1563, 1678, 1725, 2042, 2288, 2435; Venezuela, 2220; associated with blastomycosis, 21; tuberculosis, 2435; control, 1559, 1725, 2288; effect of *p*-hydroxymethyl benzoate on, 2020; in the intestinal tract, 321; isolation of, from sputum, 851, 2220, 2288; blood, 2435; serology of, 838, 2289.
— on the mouse in Brazil, 547, 965; summary of information on, 886.
— on poultry in England, 2159.
— *asteroides*, toxicity of clavacin to, 612.
— *candidum* on man in Italy, 548; affecting the lungs, 2215; diagnosis of, 1721; effect of tubercle bacillus concentration procedures on, 2215; isolation of, from sputum, 2215; relation of, to intestinal complaints, 548; staining of, by Dold's method, 1124.
— *matalense*, non-pathogenicity of, 548.
Gerbils (*Tatera brantsii*), *Histoplasma capsulatum* can infect, 1907, 1927.

Glenospora clapieri on man in S. America, 1727.
— *khartoumensis* on man in S. America, 1727.
— — renamed *Madurella khartoumensis*, 777.
— *metaeuropea*, see *Coccidioides immitis*.
— *semoni* on man in S. America, 1727.
— *viridobrunnea* on man in Italy, 845.
— — (?) synonym of *Allescheria boydii*, 1934.
Glenosporella amazonica on man in Brazil, 911.
— *loboi* on man in Brazil, 911; new forms of, in culture, 894.
Gliotoxin, effect of, on *Blastomyces dermatitidis*, 892; on fungi pathogenic to man, 425, 648; on *Trichophyton mentagrophytes*, 510, 611.
Glycerine, use of, against dermatomycoses, 377, 1322.
Goat, *Aspergillus fumigatus* on the, 267.
—, *Trichophyton langeroni* on the, in Algeria, 119.
Goldman iron alum-picric acid-haematoxylin stain, 1916.
Gorilla beringeri, *Coccidioides immitis* on, in U.S.A., 298.
Gramicidin, toxicity of, to dermatophytes, 1796.
Grill No. 6, composition of, and use of, against ringworm of man, 1266.
Growth factors for *Candida*, 751, 752; *Torulopsis*, 751; *Trichophyton album*, 350.
Gruby, David, 220.
Guinea-pig, *Acremonium cinnabarinum* can infect the, 264.
—, *Actinomyces* can infect the, 164.
—, — *bovis* can infect the, 233.
—, — *funduliformis* can infect the, 671.
—, — *madurae* can infect the, 271.
—, — *serophilus* can infect the, 876.
—, *Allescheria boydii* can infect the, 776.
—, *Aspergillus* can infect the, 2405.
—, — *fumigatus* can infect the, 1329.
—, — *nidulans* can infect the, 1096.
—, — *septatus* can infect the, 266.
—, *Blastomyces dermatitidis* can infect the, 65, 152, 1191.
—, *Candida albicans* can infect the, 1950; on the, 24; in France, 537.
—, — *brumpti* on the, 24.
—, — *parakrusei* on the, 24.
—, — (?) *stellatoidea* can infect the, 1950.
—, *Coccidioides immitis* can infect the, 714, 925, 1378.
—, *Cryptococcus neoformans* can infect the, 899, 1120, 1865.
—, *Histoplasma capsulatum* can infect the, 27, 519, 520, 1191, 1422, 1907, 1927.
—, *Microsporum* can infect the, 2193.
—, — *canis* on the, in Puerto Rico, 367.
—, *Mycotorula schawi* can infect the, 1724.
—, *Paracoccidioides brasiliensis* affecting the reticulo-endothelial system of the, 732; can infect the, 1347.
—, *Phialophora pedrosoi* can infect the, 710.
—, *Sabouraudites langeroni* can infect the, 1991.
—, *Sporotrichum biparasiticum* can infect the, 271.
—, — *schencki* can infect the, 1547.
—, — — on the, allergy and immunity in, 2036.
—, *Trichophyton* on the, control, 1777.
—, — *camerounense* can infect the, 979.
—, — *flavum* can affect the, 12.
—, — *mentagrophytes* on, allergic response to, 32; artificial immunization against, 602; can infect the, 601, 602, 801, 1005, 1023; inducing alopecia parvimaculata on the, 160; effect of cortisone on, 2205; passage of, through the blood, 601; resistance to reinfection by, 801.
[Guinea-pig, *Trichophyton*] *radiolatum* can infect the, 1224.
—, — *rubrum* can infect the, 983, 2005.
—, — *sulphureum* can infect the, 980.
Gymnoascus sudans, see *Arachniotus trisporus*.

'Hairy tongue' of man in U.S.A., 1301.
Hansenula anomala, group antigen for, 961.
Haplosporangin, sensitivity to, 516, 1882.
Haplosporangium on animals in U.S.A., 1895.
— *parvum* can infect the mouse, 513.
— — on animals in Canada and U.S.A., 2433; (?) transmission of, to man, 2374.
— — on the beaver in U.S.A., 1673.
— — on man in Mexico, 1882; U.S.A., 744. on rodents in U.S.A., 116; Canada, 920.
Hare, *Aspergillus fumigatus* on the, in Sweden, 1615.
Helixin, effect of, on *Candida albicans* and *Trichophyton mentagrophytes*, 2457.
Helminthosporium in the air in Mexico, 1600; U.S.A., 681.
— on man in Venezuela, 2220; allergic response to, 480, 885, 886, 890, 1334, 1600, 2247; in relation to the Provence reed disease in France, 684.
—, technique for preparing extracts of, 1338.
— *interseminatum* in relation to allergic diseases of man, 1332.
Hemispora stellata, see *Sporendonema epizoum*.
Henrici, A. T., memoir of, 1051.
Hexylresorcinol, effect of, on fungi, 1292, 1528.
Histadyl, effect of, on skin tests with bacterial and fungus antigens, 2222.
Histamine, effect of, on fungistatic action of histaminics, 2204; use of, against *Coccidioides immitis*, 1881.
— dichloride, effect of, on *Trichophyton mentagrophytes*, 2520.
Histaminolytic activity of fungi, 1825.
Histoplasma capsulatum can infect the gerbil, 1907, 1927.
— — can infect the guinea-pig, 27, 55, 519, 520, 1191, 1907, 1927.
— — can infect the monkey, 27.
— — can infect the mouse, 10, 518, 519, 520, 1692, 1693, 1903, 1907, 1921, 2050, 2139, 2143.
— — can infect the rabbit, 27.
— — in chick embryos, 2139.
— — in soil in U.S.A., 1428, 2145, 2221, 2281, 2451, 2452.
— — on animals, 1422, 1425, 1902.
— — on the cat in Turkey, 1699; U.S.A., 1698.
— — on cattle, 1426, 2450.
— — on the dog, 27, 316; in Brazil, 735, 1159; England, 1058; N. America, 1815; Panama Canal Zone, 747; U.S.A., 523, 748, 749, 950, 1058, 1193, 1695, 1696, 1697, 1698, 2135, 2283, 2284, 2285; affecting the intestines, 748; the liver and spleen, 749; histoplasmin sensitivity to, 1695, 1696; resistance to, 1694.
— — on the ferret, 27.
— — on the horse in U.S.A., 2286.
— — on man, 1810, 2037; in Algeria, 519; Argentina, 72, 313, 942, 1396, 2277, 2278; Austria, 1397; Brazil, 735, 938, 1159, 2438; Canada, 1902; France, 48, 2130, 2139; French Sudan, 520, 1158; Germany, 2136; Great Britain, 20, 1058, 2226, 2268, 2269, 2442; Hawaii, 939; Honduras, 1890, 1924; Indonesia, 897, 1394; a Latvian, 307; Mexico, 172; New South Wales, 1176; N. Africa, 1858; Panama Canal Zone, 2279, 2280, 2443; (?) Paraguay, 1679; Portugal, 521; Senegal, 1187; S. Africa, 2270;

the Sudan, 1400; Turkey, 734, 1699; Uruguay, 314, 1405, 1896; U.S.A., 7, 9, 55, 137, 184, 197, 308, 309, 310, 311, 312, 315, 448, 514, 517, 523, 524, 737, 738, 739, 742, 851, 910, 933, 934, 940, 941, 943, 950, 1164, 1168, 1169, 1177, 1192, 1282, 1283, 1392, 1397, 1407, 1408, 1410, 1411, 1419, 1559, 1560, 1668, 1674, 1675, 1676, 1678, 1680, 1684, 1691, 1899, 1900, 1901, 1904, 1908, 1909, 1911, 1921, 1922, 1926, 2042, 2131, 2132, 2141, 2142, 2145, 2272, 2275, 2436, 2445, 2448, 2452; U.S. Army, 1234, 2440, 2441; affecting the adrenal gland, 1192, 1411, 1909, 2136, 2445; appendix, 1920, 1922; bladder, 521; blood, 1680; bone marrow, 1680, 2141; buccal cavity, 517, 942, 1169, 1396, 2277, 2278; central nervous system, 1908; internal organs, 1908; kidneys, 2136, 2445; liver, 2445; lungs, 938, 1909, 1926, 2129, 2215, 2268, 2269, 2277, 2278, 2436, 2446; lymph nodes, 1169, 1904, 2278; mediastinal nodes, 2445; nose, 313; retroperitoneal nodes, 2445; skin, 1234; spine, 1186; spleen, 1909, 2129, 2136, 2445; throat, 1168, 2277, 2131, 2442, 2445; thymus, 2445; allergy in relation to, 1102; associated with appendicitis, 1920, 1922; endocarditis, 184, 448; lymphoblastoma, 1922; mesenteric adenitis, 1920; pneumonia, 1684, 1678; benign form of, 1417, 1418, 1419, 1897, 1922, 2275; 'capsules', found to be artefacts, 2139, 2140; capsules of, 650; communicability of, 2135; comparison between *Blastomyces brasiliensis* and, 1925; *B. dermatitidis* and, 1354; *Coccidioides immitis*, tuberculosis, and, 2127; toxoplasmosis and, 2144; control, 314, 518, 942, 1111, 1158, 1176, 1559, 1676, 1691, 2142, 2143, 2277, 2278; by surgery, 1926; culture of, 10, 168, 522, 745, 936, 937, 1394, 1680, 1689, 1690, 1822, 1921, 1928, 2138, 2441; current status of, 1399; diagnosis of, 1159, 1160, 1169, 1680, 1721; differentiation of, from tuberculosis, 1393; distribution of, 1282, 1393; effect of antihistaminic compounds on, 1569; atabrine on, 2143; ethyl vanillate on, 2141, 2142; fradicin on, 1819; rimocidin on, 2218; streptomycin on, 1285; trimetric maleate on, 1819; tubercle bacillus concentration procedure on, 2215; endotoxin in, 2380; epidemic form of, 2440; epidemiology of, 1054; factors affecting, 2439; factors influencing histoplasmin formation by, 1189; fatty cytoplasmic inclusions in, 651; geographical distribution of, 308, 309, 2444; haemolysin from, 2092; H-ion concentration in relation to, 1180; histology of, 1410; histoplasmin sensitivity in relation to, 738, 740, 741, 742, 743, 744, 944, 945, 946, 947, 948, 950, 1160, 1161, 1162, 1163, 1164, 1165, 1166, 1167, 1173, 1174, 1175, 1177, 1178, 1179, 1181, 1182, 1183, 1184, 1189, 1289, 1384, 1385, 1393, 1395, 1401, 1402, 1403, 1404, 1409, 1413, 1414, 1415, 1416, 1426, 1677, 1678, 1679, 1681, 1682, 1683, 1684, 1685, 1686, 1882, 1890, 1891, 1900, 1901, 1902, 1905, 1917, 1918, 1919, 1923, 1924, 2119, 2133, 2134, 2145, 2269, 2275, 2279, 2436, 2438, 2440, 2441, 2444, 2448, 2450; identification of, 1060; in relation to vitamin B_1 synthesis, 1568; isolation of, 1168, 1172, 1177; from bone marrow, 2281, 2441; faeces, 2132; heart's blood, 1909; lymph node, 2132; sputum, 851, 2132, 2215, 2281; wine, 2132; lymphoblastoma in relation to, 1397; mineral deficiency in relation to, 2131; mycelial phase of, 1181; a polysaccharide fraction of histoplasmin in relation to, 1185; portals of entry of, into body, 938; problem of benign, 1897, 1898; production of an ethylene-like gas by, 1108; pulmonary calcifications in relation to, 933, 1178, 1179, 1384, 1399, 1409, 1416, 1418, 1419, 1420, 1900, 1924, 2144, 2269, 2271; pulmonary infiltration in relation to, 1417; resistance of, to drying and low temperature, 315; review of, 306, 309, 852, 929, 934, 935, 1190, 1398, 1555, 1810, 1896, 2128, 2368; sensitization of guinea-pigs to, 1186; serology of, 745, 1165, 1412, 1413, 1570, 1687, 1688, 1823; simulating cancer, 2442; tuberculous pneumonia, 311; spore formation of, 1188; stain for detecting, 1171; systematics of, 733; systemic infection with, 910; technique for tissue changes in, 1062; for examining, in tissue, 2139, 2140; tissue culture study on, 2138; toxicity of diethylstilbestrol to, 827; lactoflavin to, 853; neoarsphenamine to, 746; plumbagol to, 856; sodium azide to, 426; stilbamidine to, 746; transmission of, to man, from animals, 2374; from soil, 2281, 2452; use of X-rays in detection of, 2144; viability of, 2439; virulence of some strains of, 1914; yeast-like phase of, 936, 937, 1180, 1181, 1182, 1183, 1184, 1188, 1191, 1414, 1421, 1422, 1423, 1700, 1903, 1906, 1910, 1928, 2138.

[*Histoplasma capsulatum*] on the mouse, 848, 1427; culture of, 2453; in U.S.A., 27, 316, 950, 1194, 1195, 1698; study on capsule of, 2137; technique for injecting, 1913, 1914, 1915, 1916.

— — on the opossum in U.S.A., 1698.

— — on the rabbit, reactions to, 1906.

— — on the rat in U.S.A., 1194, 1195, 1427, 1428.

— — on the skunk in U.S.A., 1427, 1698.

— *farciminosum* on animals, (?) transmission of, to man, 2374.

— — on the donkey, 1815.

— — on the horse in Burma, Europe, England, India, Ireland, Italy, 2434; Great Britain, 1058; Indonesia, 897; Slovakia, 1125; the Sudan, 707; U.S.S.R., 2257; account of, 1050; control, 2216, 2257; transmission of, by flies, 2257.

— — on the mule, 1815.

— —, *Sporotrichum schencki* mistaken for, 1815.

— —, yeast-like phase of, 1700.

— *pyriforme* on man in U.S.A., 309.

Histoplasmin, 1677, 1678, 1679, 1681, 1682, 1683, 1684, 1686, 1695, 1696, 1810, 2436, 2437, 2438, 2441, 2444, 2447, 2448, 2449, 2451; comparison of, in animals and man, 2450; cross-reactions between blastomycin and, in guinea-pigs, 949; factors affecting, 1174; induced in guinea-pigs, 1186; geographical differences in sensitivity of nurses to, 736; immunologically active polysaccharide isolated from, 1185; pulmonary calcification in relation to, 515, 740, 741, 742, 743, 744, 944, 945, 946, 947, 948, 950, 1416, 1417, 1420; relation of, to coccidioidomycosis, 1170; to *Histoplasma capsulatum*, 1173, 1174, 1175, 1384, 1385, 1395, 1401, 1402, 1403, 1404, 1409, 1412, 1413, 1415, 1416, 1417, 1420, 1424; to pulmonary disease, 516, 1160, 1161, 1162, 1163, 1164, 1178, 1179; sensitivity to, 1882, 1890, 1891, 1900, 1901, 1902, 1905, 1917, 1918, 1919, 1923, 1924, 2119, 2133, 2134, 2145, 2269, 2273, 2274, 2275, 2276, 2279, 2282, 2287, 2437; technique for selecting new product of, 1912; unreliable for the diagnosis of *Histoplasma capsulatum*, 738.

Histoplasmosis of animals and man, see *Histoplasma capsulatum*.

Hodgkin's disease, 2104; associated with *Cryptococcus neoformans*, 1867.
Hormiscium dermatitidis on man in Puerto Rico, 1803.
Hormodendrum in the air in Mexico City, 268, 1600; Sweden, 1604; U.S.A., 175, 682, 888.
— on man in Brazil, 1652; Costa Rica, 2262; (?) Indo-China, 2263; allergic response to, 480, 885, 886, 890, 1604, 2247; in relation to allergic diseases of man in Canada, 1334; *Phialoconidiophora* and, 1650; technique for preparing extracts of, 1338.
—, see also *Cladosporium*.
— *algeriensis* on man in Algeria associated with chromoblastomycosis, 284, 285.
— *cladosporioides* in the air in Brazil, 1848; France, 1850; U.S.A., 1851.
— — in dust in U.S.A., 1337.
— — in relation to allergic diseases of man, 1332.
— *compactum*, see *Phialophora compacta*.
— *nigrescens* in the air in U.S.A., 1337.
— *pedrosoi*, see *Phialophora pedrosoi*.
— *viride* in the air in U.S.A., 1337.
Hormones, 1737, 1771, 1801; effect of, on dermatophytes, 1015; pathogenic fungi, 1441, 1999.
—, gonadotropic, use of, against scalp ringworm, 615.
Horn, *Microsporum gypseum* on, 1990.
Horse, *Actinomyces bovis* on the, in U.S.A., 678.
—, — *caballi* on the, in France, 469.
—, actinomycete on the, in Australia, 2395.
—, *Blastomyces dermatitidis* on the, 1815; in U.S.A., 1107.
—, *Cryptococcus lacrymeatus* on the, 1005.
—, — *mirandei* on the, 1005.
—, — *neoformans* on the, 1815.
—, *Histoplasma farciminosum* on the, 1050, 1815; in Asia, 2434; Europe, 2434; Great Britain, 1058; Indonesia, 897; Slovakia, 1125; Sudan, 707; U.S.S.R., 2257; control of, and transmission by flies, 2257.
—, histoplasmin sensitivity in the, 2282, 2449.
—, *Microsporum equinum* on the, in Fiji, 633, 634; Germany, 165, 834.
—, — *gypseum* on the, in Germany, 165.
—, mycosis of the guttural pouch of the, 157.
—, *Rhinosporidium seeberi* on the, in Argentina, 784; India, 783, 1815; S. Africa, 1815; Uruguay, 1815.
—, ringworm of the, in Fiji, 1543; S. Africa, 1269.
—, *Sporotrichum jeanselmei* on the, in U.S.A., 185.
—, — *schencki* on the, 1815; Colombia, 1272; U.S.A., (?) 185.
—, *Trichophyton equinum* on the, in Germany, 834.
—, — *flavum* on the, in Argentina, 12.
—, — *schoenleini* on the, in Germany, 834.
Hyalopus in the air in Spain, 1847.
— *cordoniformis* on man in Brazil, 781; not a synonym of *H. spinosus*, 782.
— *onychophilus* on man in Argentina, 11.
Hyaluronidase, action of, on capsule of *Cryptococcus neoformans*, 1366.
Hyamine 1622, use of, against *Microsporum audouini*, 1471.
Hydrazine N, N-bis, effect of, on *Nocardia*, 2068.
Hydrochoerus isthmius, (?) actinomycosis of, in Panama, 878.
Hydroxyquinoline, 1778.
8-hydroxyquinoline, use of, against *Candida albicans*, 1538; *Epidermophyton floccosum*, 1538; *Trichophyton mentagrophytes*, 1538.
Hydroxyproline, toxicity of, to dermatophytes and other fungi, 823.
Hyphomycetes on man in Italy, 1713, 1714; Sweden, 1564; presence of, in the vagina, 1432.
Hyphomycoses of man, 1813.

Ichthyol, use of, against dermatomycosis, 558.
Idiopathic hypoparathyroidism associated with *Candida albicans*, 340.
Immunology in diagnosis and treatment of fungal infections, 1810.
Indiella on man in Brazil, 85; taxonomy of, 777, 974.
— *regnieri* on man in Greece, 200.
Indole-β-acetic acid, effect of, on *Candida albicans*, 1210, 1938.
Infectious abortion of cattle in Norway, *Aspergillus fumigatus* (?) causing, 1857.
Insulin, use of, against *Cryptococcus neoformans*, 2100.
Intertrigan, use of, against *Candida albicans*, 1703.
Iodides, 1621; use of, against actinomycosis, 1577, 2240; *Blastomyces dermatitidis*, 1859, 1862, 2250; (?) bronchomycosis, 2290; *Candida albicans*, 2472; *Cryptococcus neoformans*, 2108; *Geotrichum*, 1725; pathogenic fungi, 1559; *Phialophora*, 1879; *Sporotrichum schencki*, 1805, 2032, 2212, 2547; *Trichophyton faviforme*, 2515.
—, organic, use of, against *Nocardia asteroides*, 1582.
Iodine, toxicity of, to fungi, 1290; use of, against *Actinomyces bovis*, 206; *A. funduliformis*, 671; actinomycosis, 240; *Aspergillus fumigatus*, 1099, 1613; *A. septatus*, 266; athlete's foot, 406; *Blastomyces dermatitidis*, 273, 278, 893; *Candida*, 324, 325; *C. albicans*, 330, 338, 1716; *Cryptococcus neoformans*, 1866; dermatophytes, 1503; equine ringworm, 1269; *Histoplasma capsulatum*, 1158; *Microsporum audouini*, 992, 1985; *M. equinum*, 634; moniliasis, 1951; onychomycosis, 2308; *Phialophora pedrosoi*, 289; *Sporotrichum schencki*, 409, 412, 1044, 1046; *Torulopsis minor*, 1625; *Trichophyton gallinae*, 835; *T. mentagrophytes*, 1006.
— ionphoresis, use of, against tinea capitis, 2325.
Iodized alcohol, use of, against *Trichophyton rubrum*, 983.
Iodocellulose in glycerine, use of, against dermatomycoses, 1032.
Iodoseptoplix, use of, against *Blastomyces dermatitidis*, 481.
Irgamid, composition of, and use of, against actinomycosis, 243.
Iso-par as a fungicide, 1826.

Japanese B encephalitis of man, analogy with torulosis, 1357.

Katusan, use of, against *Actinomyces bovis*, 2246.
Keratin digestion by *Microsporum gypseum*, 1990.
Kerion of man in Chile, 368; Denmark, 571; Hungary, 2316; India, 1489; U.S.A., 1752, 2362; associated with fungi, 2316; *Trichophyton rubrum*, 2207, 2362; *T. sulphureum*, 1752; control, 571, 2316.
Kloeckera, nitrogen assimilation tests not reliable for classification of, 755.

Laboratory animals, choice of, for pathogenicity tests of fungi, 848.

Lactoflavin, toxicity of, to *Candida krusei*, 953, 954; *Cryptococcus neoformans*, 953; fungi, 853.
Langeronia soudanense, see *Trichophyton soudanense*.
Lanoline, use of, against *Microsporum*, 1507.
Laryngitis of man, *Saccharomyces laryngitidis* associated with, 1444.
Leather, effect of ringworm on, 1271.
—, *Epidermophyton floccosum* on, 1026.
—, fungi on, in U.S.A. (Air Force), 2497; sterilization against, 2497.
—, *Trichophyton interdigitale* on, 631, 1026; toxicity of chemicals to, 1026.
—, — *mentagrophytes* on, control, 631.
Legislation against ringworm in cattle and horses in Fiji, 1543.
Leptomeningitis, *Ustilago maydis* inducing, in U.S.A., 654.
Levurin, production of, from *Candida albicans*, 2354; valueless in the diagnosis of mycoses, 144.
Lime, use of, with sulphur against *Trichophyton interdigitale*, 626.
Lime-sulphur, use of, against *Microsporum equinum*, 634.
Lipiodol, use of, against actinomycosis, 455; *Histoplasma capsulatum*, 1158.
Lipoids of *Aspergillus fumigatus*, effect of, on antibody formation, 1612.
Llama, *Pityrosporum ovale* on the, 2491.
Lugol's solution, use of, against actinomycosis, 455; *Blastomyces dermatitidis*, 481; *Sporotrichum schencki*, 640, 2548.
Lumpy jaw, see Actinomycosis of cattle.
'Lumpy wool' of sheep, see Mycotic dermatitis.
Lupus erythematosus, simulation of, by *Aspergillus*, 2086.
Lymphoblastoma of man, *Histoplasma capsulatum* in relation to, 1397, 1922.
Lymphogranulomatosis benigna, see Schaumann's disease.

Macrosporium in the air in Spain, 1847, 2085; U.S.A., 681, 1851.
Madura foot, see Mycetoma.
Madurella on man in U.S.A., 382, 969, 973; radiate formation by species of, 650.
—, taxonomy of, 777, 974.
? — *americana* on man in Aden, 1197; S. America, 1727.
— *grisea* on man in S. America, 1727.
— *ikedae*, see *M. americana*.
— *khartoumensis, Glenospora* renamed, 777.
— *mycetomi* on man in Brazil, 85.
— *oswaldoi* on man in Brazil, 85.
— *ramiroi* on man in Brazil, 85; Argentina, 968; associated with mycetoma, 85; a *nomen dubium*, 1727.
— *tozeuri* on man in S. America, 1727.
Maduromycosis, see Mycetoma.
Malassezia furfur on man in Algeria, 359; Argentina, 1760; Austria, 201; Brazil, 35, 1240; Canada, 1218; Denmark, 571; Germany, 1322, 2328; Great Britain, 1463, 2170, 2226; India, 1489; Italy, 2203; Japan, 1222; Malaya, 563; Samoa, 2501; the Belgian Congo, 2489, 2490; Uruguay, 1976; U.S.A., 12, 114, 986, 1031, 1462, 1464, 1465, 1516, 2176, 2219, 2355, 2508; U.S. Army, 1234; U.S. Navy, 565; affecting the ear, mouth, nose, and throat, 228; skin, 1234, 1322, 1463, 1465, 1489, 2489, 2490, 2501, 2508; associated with ringworm, 359, 1218; combined infections of, with other fungi, 120; control, 571, 1031, 1322, 1516, 2203, 2219, 2355, 2508; culture medium for, 966; in relation to dermatomycoses, 977; technique for staining, 1499; variations in, 1464.
Malbranchea pulchella on man in Spain, 2492.
Malic acid, use of, against ringworm of cattle, 832.
Martes americana, see Pine marten.
MC 2207, effect of, on dermatophytoses, 1796.
Medical mycology, 2037; American books on, 418, 419; bibliography of, *1940*, 646; diagnostic problems in, 1287; French book on, 2367; immunology in, 1816; an Italian treatise on, 844; need for personnel trained in, 2043; Portuguese contributions to, 1814; review of current literature on, 219, 1052, 1055, 1555, 1813, 2368, 2369; study of, in S. America, 647; symposium on, 1810.
— and veterinary mycology in Britain, 2225.
Meningitis of man in England, 2401; France, 1638; Peru, 2415; Switzerland, 1100; U.S.A., 1199, 1635, 1638, 1665, 2255, 2416; associated with *Allescheria boydii*, 1199; *Aspergillus*, 1100; *Candida albicans*, 115; *Cryptococcus neoformans*, 103, 1367, 2255, 2256; control, 2416.
Mephitis hudsonica, see Skunk.
Meracin, effect of, on *Nocardia brasiliensis*, 1827.
Mercuric iodide, use of, against *Piedraia malayi*, 1746.
— oxide, use of, against *Trichophyton camerounense*, 979.
Mercury, ammoniated, use of, against ringworm of the scalp, 369.
Merphen spirit, use of, against *Microsporum audouini*, 1985.
Mesenteric adenitis, *Histoplasma capsulatum* associated with, 1920.
Merthiolate, toxicity of, to *Microsporum audouini*, 1258; use of, against *Candida*, 771.
Methionine, effect of, on *Candida albicans*, 2149.
Metacresol acetic acid ester, toxicity of, to *Microsporum audouini*, 1258.
Metacresylacetate, see Cresatin.
Metapheneugenol, use of, against *Candida albicans*, 765.
Methyl green, use of, against *Aspergillus nidulans* and *A. niger*, 1325.
2-Methyl 1-4-naphthoquinone, toxicity of, to fungi attacking man, 856.
Methylrosaniline, use of, against *Candida albicans*, 1440.
— chloride, use of, against *Cryptococcus neoformans*, 2256.
Methyl testerone, effect of, on *Trichophyton mentagrophytes* and *T. rubrum*, 1015.
Micromonospora, utilization of carbon compounds by, 1094.
Micro-organisms in foodstuffs, 2142.
Microsphaera circinata and *M.* (?) *euonymi* in relation to allergic diseases of man, 1331.
Microsporosis, see *Microsporum*.
Microsporum on animals in France, 2019.
— on the dog in U.S.A., 2182.
— on man, 1810, 1970, 2173; in Belgium, 1507, 2341; Brazil, 1240; Chile, 368; France, 2167; Germany, 1796, 2180, 2320, 2328, 2329, 2331; Great Britain, 1266, 1978; India, 1489; Italy, 1737; (?) Portugal, 2335; Uruguay, 1976; U.S.A., 352, 362, 1245, 1749, 2315; affecting the feet, 2315; scalp, 1245, 1252, 1266, 1507, 2164, 2167; skin, 1489; biology of, 2174; control, 1266, 1292, 1507, 2328; diagnosis of,

352, 996, 2164; epidemiology of, 1054; nature of 'macroconidia in', 2503; tissue changes in, 1062; use of, in testing fungicides, 1020.
[*Microsporum*] on the sheep in Uruguay, 2193.
— *audouini* on animals in Australia, 2500.
— — on man, 69, 791; in Algeria, 982; Australia, 2500; Austria, 201; Belgium, 2341; Canada, 348, 1218, 1238; Czechoslovakia, 1771; Egypt, 2342; Denmark, 1740; France, 2014; Germany, 1232, 1741, 1770, 2321, 2329, 2330, 2331, 2340; Great Britain, 369, 386, 575, 576, 988, 1000, 1235, 1266, 1511, 1533, 1971, 1972, 1978, 1984; India, 389, 615; New Zealand, 1233, 2226, 2325; Nigeria, 800; N. Ireland, 1971, 2178, 2179, 2509; Palestine, 981; Persia, 2206; Spain, 2169, 2184, 2334; Switzerland, 1973, 1985, 1986; Uruguay, 1976; U.S.A., 88, 361, 362, 364, 365, 366, 385, 387, 397, 586, 587, 588, 596, 597, 598, 599, 605, 790, 792, 793, 794, 795, 796, 804, 805, 806, 807, 809, 810, 846, 985, 986, 987, 990, 991, 992, 993, 994, 997, 1004, 1229, 1244, 1245, 1258, 1259, 1466, 1467, 1468, 1469, 1470, 1471, 1472, 1473, 1504, 1509, 1512, 1516, 1520, 1531, 1532, 1749, 1756, 1757, 1758, 1759, 1763, 1783, 1795, 1801, 1979, 1987, 1989, 2176, 2177, 2181, 2182, 2183, 2185, 2337, 2343, 2344, 2345, 2346, 2347, 2351, 2376, 2502, 2507, 2508, 2520; acidity of scalp in relation to, 792; affecting the eyebrows, 498; eyelashes, 387, 1467, 1757; hair, 1244, 1474, 1531, 1532; nails, 2376; scalp, 88, 385, 586, 597, 615, 794, 795, 796, 985, 986, 987, 988, 990, 991, 992, 993, 994, 997, 998, 999, 1000, 1218, 1229, 1231, 1238, 1244, 1245, 1246, 1253, 1258, 1259, 1466, 1467, 1468, 1469, 1470, 1471, 1472, 1473, 1474, 1501, 1502, 1504, 1508, 1509, 1511, 1512, 1516, 1530, 1531, 1532, 1533, 1755, 1971, 1972, 1976, 1978, 1979, 1984, 1985, 1986, 1987, 1989, 2014, 2022, 2177, 2178, 2179, 2181, 2182, 2183, 2184, 2185, 2206, 2325, 2342, 2337, 2343, 2344, 2345, 2346, 2351, 2376, 2500, 2502, 2507, 2508, 2509, 2510, 2520; skin, 1218, 1474, 1516, 2376, 2520; antagonism of aerosporin to, 1539; associated with alopecia parvimaculata, 1771; athlete's foot, 599; combined infection with *M. canis* and, 1758, 1759, 2177; contracted from a monkey, 2347; control, 362, 364, 365, 369, 385, 386, 397, 586, 587, 605, 615, 618, 792, 793, 795, 796, 804, 805, 806, 807, 809, 810, 989, 990, 991, 992, 993, 994, 997, 999, 1111, 1231, 1232, 1235, 1245, 1246, 1253, 1258, 1259, 1262, 1266, 1466, 1470, 1471, 1474, 1501, 1502, 1504, 1508, 1509, 1511, 1512, 1530, 1531, 1532, 1533, 1755, 1756, 1757, 1771, 1783, 1795, 1801, 1972, 1984, 1985, 1986, 1987, 1989, 2014, 2022, 2177, 2178, 2179, 2183, 2184, 2185, 2321, 2322, 2329, 2330, 2331, 2341, 2342, 2343, 2344, 2345, 2351, 2502, 2507, 2508, 2509, 2520; culture of, 597, 987, 1216, 1244, 1466, 1758, 1759, 1766, 1782, 1795, 1982, 1983, 2176, 2322, 2339, 2347, 2533; diagnosis of, 385, 793, 1469, 1770; by Wood's lamp, 1466; differentiation of, from *M. canis* by fluorescence, 1250; effect of antibiotic XG on, 2026; asterol dihydrochloride on, 2186; l-cystein hydrochloride on, 2318; cod liver oil and fatty acids on, 1782; endomycin on, 2054; myosubtilin on, 2025; neopyrithiamine on, 1981; penotrane on, 2053; polymyxins on, 2312; raphanin on, 1793; sulphonamides on, 1798; thioglycollic acid on, 2318; trimeton maleate on, 1819; tyrothricin on, 1508, 2001; yeast extract on, 1983; epidemiology of, 985; fungistatic action of hair fat on, 614; immunity from, 1800; inoculation studies in, 2500; perithecial production by, 69; physiological study on, 1982; production of endotrichophytin and exotrichophytin by, 2540; review of, 362, 1246; serology of, 577, 2348; spontaneous cure in puberty, 791, 998; study on, 384; technique for distinguishing between *M. canis* and, 1978; isolating, 1497; slide culture of, 785; staining, 1499; tenacity of, on human hair, 1980; toxicity of antibiotics to, 649, 829; antiseptics to, 2529; clavacin to, 1033; Congo red to, 853; diethylstilbestrol to, 827; culture filtrates of *Aspergillus clavatus* to, 1034; lactoflavin to, 853; monopyridine iodine p-nitrobenzoate to, 824; parachlorophenol-α-glycerol ether to, 1030; paraquinone to, 853; salicylic acid and related compounds to, 1256; undecylenic acid to, 619; transmission of, by soap, 599; from a dog, 2182.
[*Microsporum audouini*] on the monkey in U.S.A., 2347.
— — on string in U.S.A., 388.
— *canis* on animals in Australia, 2500; effect of fungocin on, 2027.
— — on the cat, 367, 2531; in Brazil, 2512; England, 2511; U.S.A., 37, 632, 1992; saprophytism in, on, 2512.
— — on the dog, 2531; in England, 2511; U.S.A., 632.
— — on the guinea-pig, 367.
— — on leather in U.S.A. (Air Force), 2497.
— — on man in Algeria, 982, 1221; Algiers, 800; Angola, 1744; Argentina, 80, 1760, 2311; Australia, 2500, 2504, 2505; Belgium, 1453, 2341; Brazil, 169, 2350; Canada, 205, 348, 1218; Denmark, 1740; France, 2014, 2167; Germany, 2329; Great Britain, 575, 576, 1000, 1235, 1266, 1511, 1971, 1972, 1978, 2184, 2226, 2511; Mexico, 26; New Zealand, 1233, 2325; N. Africa, 2498; N. Ireland, 1971, 2179; Panama, 1061; Poland, 2190; (?) Portugal, 595, 2335; Puerto Rico, 367; Spain, 2169, 2334, 2499; Switzerland, 1967, 1973; Turkey, 1743; Uruguay, 1976; U.S.A., 37, 361, 587, 596, 597, 599, 790, 792, 796, 797, 810, 846, 986, 993, 994, 997, 1001, 1002, 1003, 1231, 1244, 1466, 1468, 1473, 1474, 1475, 1509, 1512, 1516, 1520, 1563, 1747, 1749, 1758, 1759, 1763, 1795, 1989, 1992, 2177, 2179, 2183, 2184, 2186, 2337, 2344, 2355, 2376, 2502, 2530; U.S.S.R., 1219; Venezuela, 2220; acidity of the scalp in relation to, 792; affecting the ears, 169; eyelashes, 169, 1992; face, 169, 1218, 1976; feet, 2525; hair, 1219, 1244, 1474, 1475, 2220; nails, 2376; scalp, 169, 597, 796, 797, 986, 993, 994, 997, 1000, 1218, 1231, 1233, 1244, 1453, 1466, 1473, 1474, 1508, 1509, 1511, 1512, 1516, 1520, 1743, 1749, 1758, 1759, 1760, 1763, 1795, 1800, 1972, 1976, 1978, 1979, 1988, 1989, 2022, 2167, 2177, 2179, 2181, 2183, 2184, 2186, 2189, 2190, 2311, 2325, 2337, 2341, 2344, 2355, 2376, 2499, 2500, 2502, 2504, 2505, 2510, 2520; skin, 576, 595, 1231, 1474, 1563, 2022, 2219, 2325, 2376, 2500, 2520; antagonism of, to *Staphylococcus aureus*, 1215; of aerosporin to, 1539; *Bacillus pyocyaneus* to, 1024; associated with athlete's foot, 599, 1468; *Trichophyton tonsurans*, 1453; combined infection of *Trichophyton mentagrophytes* and, 2499; *M. audouini* and, 1758, 1759, 2177; contracted from animals, 2511; control, 117, 587, 792, 796, 810, 1001, 1002, 1003, 1231, 1235, 1260, 1266, 1474, 1501, 1505, 1508, 1516, 1520, 1795, 1972, 1989, 1992, 2177, 2179, 2183, 2184, 2186, 2219, 2322, 2329,

2341, 2344, 2350, 2355, 2502, 2504, 2511, 2525, 2520; culture of, 597, 1216, 1244, 1453, 1466, 1758, 1766, 1782, 1982, 1983, 2176, 2177; diagnosis of, 2505; differentiation of, from *M. audouini*, 1250; effect of antibiotic XG on, 2026; l-cystein hydrochloride on, 2318; cod liver oil and fatty acids on, 1782; crystalline fradicin on, 1820; endomycin on, 2054; fungocin on, 2027; myosubtilin on, 2025; penotrane on, 2053; polymyxins on, 2312; 3-pyridinethiol zinc derivative on, 1789; some antihistaminic compounds on, 1569; some plant extracts on, 2323; thioglycollic acid on, 2318; trimeton maleate on, 1819; tyrothricin on, 2001; various substances on oxygen uptake of, in culture, 2506; vitamin K on, 2024; vitamins on growth of, 1495; X-rays on, 2187; yeast extract on, 1983; hypersusceptibility to, induced in guinea-pigs, 1243; immunity from, 1800; inhibition of, by extract of *Thuja plicata*, 649; a product of *Bacillus subtilis*, 829; isolation of, 786; *M. felineum* and *M. lanosum* synonyms of, 2349; 'macroconidia' of, 2189; pathogenicity of, 1451; to the eye, 1223; physiological study on, 1982; production of endotrichophytin and exotrichophytin by, 2540; serology of, 577, 2348; taxonomy of, 2349; technique for culturing, 1762; for distinguishing between *M. audouini* and, 1978; for identifying, 1763; for photographing, 1988; for slide-culture of, 785; toxicity of allylsenerol to, 1023; culture filtrates of *Aspergillus clavatus* to, 1034; diethylstilbestrol to, 827; hydroxyproline to, 823; parachlorophenol-α-glycerol ether to, 1030; sulphanilamide to, 623, 1028; salicylic acid and related compounds to, 1256; transmission of, from animals to man, 2374; to the dog, 576; by soap, 599; variation in, 345, 787; virulence of, 2310; vitamin deficiency in relation to, 2350.
[*Microsporum canis*] on string in U.S.A., 388.
— *duboisi* as a test fungus for fungicides, 2541.
— — on man in the Belgian Congo, 1483, 1996; culture, 1762; virulence of, 2310.
— *equinum* on the horse in Fiji, 633, 634; Germany, 165, 834; U.S.A., 632; control, 633, 634.
— — on man in Germany, 834; toxicity of sodium propionate and sulphamides to, 1264.
— *felineum*, see *Microsporum canis*.
— *ferrugineum*, see *Trichophyton ferrugineum*.
— *fulvum* on man, 594; in U.S.A., 790, 1474; accepted as a valid species, 348; *M. gypseum* not a synonym of, 594; inhibition of, by a product of *Bacillus subtilis*, 829. See also *M. gypseum*.
— *gallinae*, see *Trichophyton gallinae*.
— *gypseum*, antagonism of *Aspergillus flavus* to, 830; keratin digestion by, 1990.
— — on animals, (?) transmission of, to man, 2374.
— — on horn, 1990.
— — on the horse in Germany, 165.
— — on leather in U.S.A., 2497.
— — on man, 594; in Belgian Congo, 2192; Brazil, 56, (?) 1965; Canada, 1218; Denmark, 1740, 2197; Finland, 1455, 1456; Great Britain, 1971, 2226; Italy, 1738; New Zealand, 1233, 2325; N. Ireland, 1971; Puerto Rico, 367; Switzerland, 1967; Uruguay, 1976; U.S.A., 361, 1457, 1512, 1747, 1749, 1989, 1990, 1993, 2176, 2181, 2326; affecting the body, 1218; face, 1218; feet, 2525; hair, 1990; nails, 1990; scalp, 1512, 1747, 1749, 1976, 1989, 2181, 2325, 2326; scrotum, 1457, 1738; skin, 2192, 2325, 2326; control, 1457, 1512, 1965, 1989, 2192, 2197, 2322, 2326, 2525; culture of, 1782, 1982, 1993; cytoplasmic inclusions in, 651; endotoxin in, 2380; effect of antihistaminic compounds on, 1569; amino acids on, 2327; cod liver oil and fatty acids on, 1782; histaminolytic activity in, 1825; plant extracts on, 2323; physiology of, 1982, 2191; serology of, 577, 2348; toxicity of diethylstilbestrol to, 827; eumycin to, 828; sulphanilamide to, 1028.
[*Microsporum gypseum*] on wool, 1794, 1990.
— *langeroni* can infect the guinea-pig, 1991.
— — on man in Belgian Congo, 1991, 1996; combined infection of *Trichophyton violaceum* and, 1996; taxonomy of, 2349.
— *lanosum*, see *M. canis*.
— *minutissimum* on man in Austria, 201; U.S.A., 120.
— *obesum* on man in the French Cameroons, 800.
— *paraferrugineum* on man in Brazil, 592.
— *pseudo-umbonatum* on man in France, 1485.
— *quinckeanum*, see *Trichophyton quinckeanum*.
— *rubrum*, inhibition of, by a product of *Aspergillus flavus*, 830.
— *schoenleini*, see *Trichophyton schoenleini*.
Milk, *Cryptococcus neoformans* in, in Scotland, 1865.
Mineral oil, use of, for maintaining cultures, 2048.
Mink (*Mustela vison*), ? *Absidia corymbifera* on the, in U.S.A., 2307.
—, *Haplosporangium* on the, in U.S.A., 1895.
Mole, Townsend, see *Scapanus townsendii*.
Monascus purpureus on man in Algeria, 359.
Monilia, see *Candida*.
— *geophila* in the air in U.S.A., 1602.
— *nabarroi* on man in Canada, 102.
— *sitophila* in the air in Mexico, 1600.
Moniliasis, 'candidosis' suggested in place of, 2472.
— of man, 1818; in Australia, 1951; India, 1489; the Pacific Islands, 225; the S. Pacific, 607; U.S.A., 1462, 1465, 2337, 2508; affecting the skin, 1489; diagnosis of, 2161. (See also *Candida albicans*, &c.)
Monkey, *Histoplasma capsulatum* can infect the, 27.
—, *Microsporum audouini* on the, in U.S.A., 2347.
Monochlormercuricarvacrol, toxicity of, to pathogenic fungi, 389.
Monopyridine iodine p-nitrobenzoate, toxicity of, to *Microsporum audouini* and *Trichophyton gypseum*, 824.
Monosporium apiospermum, see *Allescheria boydii*.
— *sclerotiale* on man in S. America, 1727.
Monotospora brevis in the air and dust in U.S.A., 1337.
Mosaic fungus, dermatophytids in relation to, 353; regarded as an artefact, 351.
'Mossy foot' of man in Brazil, 1880.
Mould culture filtrates, effect of, on the rabbit, 2051.
Moulds in the air in Spain, 1847; U.S.A., 1337, 1844.
— in dust in U.S.A., 1337.
— on cedar, elm, and *Tillandsia* in U.S.A., 1844.
— on man, allergic response to, 885, 886, 887, 890, 1600, 1603, 1604, 1845, 1846; in relation to asthma and allergic diseases, 269, 1604, 1605; in England, 884; U.S.A., 1330; in relation to respiratory diseases, 175; trachoma

in Spain, 1828; in sputum in U.S.A., 63; saprophytic nature of, 1812; technique for the preparation of mounts of, 1064.
Mouse, *Acremonium potroni* can infect the, 848.
—, *Actinomyces* can infect the, 164.
—, — *bovis* can infect the, 848.
—, *Allescheria boydii* can infect the, 848, 2487.
—, *Blastomyces dermatitidis* can infect the, 84, 1105, 1352, 2050.
—, — *lanuginosa* on the, in U.S.A., 1194.
—, *Candida albicans* can infect the, 2050.
—, *Cephalosporium acremonium* can infect the, 532.
—, *Coccidioides immitis* can infect the, 73, 718, 2050.
—, *Cryptococcus* on the, 1359; in U.S.A., 1194.
—, — *neoformans* can infect the, 899, 1109, 1120, 1872, 2050, 2410; on the, 62, 1632, 1638; serology of, 62, 1633.
—, fungi isolated from tumours of the, 1930; various fungi can infect the, 2380.
—, *Geotrichum* spp. on the, in Brazil, 547, 965.
—, *Haplosporangium* on the, in U.S.A., 1895.
—, — *parvum* can infect the, 513.
—, *Histoplasma capsulatum* on the, in U.S.A., 10, 27, 950, 1194, 1195, 1698; study on capsule of, 2137; technique for injecting, 1913, 1914, 1915, 1916.
—, *Nocardia asteroides* can infect the, 2050, 2060.
—, nocardiosis of, 2068.
—, *Phialophora pedrosoi* can infect the, 495.
—, *Sporobolomyces salmonicolor* can infect the, 2488.
—, sporotrichosis of the, in U.S.A., 49.
—, *Sporotrichum schencki* can infect the, 848, 1280, 1547, 2050, 2139.
—, *Trichophyton gallinae* on the, in New South Wales, 835.
—, — *interdigitale* on the, in U.S.A., 2518.
—, — *quinckeanum* on the, 1977.
—, — *mentagrophytes* on the, 192.
Mucin, effect of, on *Actinomyces bovis*, 2080; on resistance of mice to fungi, 2050; *Histoplasma capsulatum*, 1692; *Nocardia asteroides*, 2060.
Mucor in the air in Mexico, 1600; Spain, 1847; Sweden, 1604.
— in ants' nests in Uruguay, 1642.
— in dust in relation to asthma, 1103; in house dust in Denmark, 1603.
— on animals, (?) transmission of, to man, 2374.
— on cattle in Spain, 2486.
— on man in England, 884; U.S.A., 879, 967, 1283, 1295, 2042, 2306; U.S. Army, 1608; affecting the central nervous system, 967; ear, 879; lung, 2306; allergic response to, 479, 890, 1334, 1600, 1603, 1604, 1846; relation of, to asthma in England, 884; review of, 852; tissue changes in, 1062; toxicity of, to rabbits, 1328.
— on sheep in S. Africa, 2305.
— *conoideus* on animals in Germany, 215.
— *corymbifera*, see *Absidia corymbifera*.
— *piriformis* in indoor air in U.S.A., 1602.
— *pusillus* on animals in Germany, 215.
— *racemosus* on animals in Germany, 215.
— — on man in Finland, 1455.
Mucormycosis of man in U.S.A., 1956, 1957.
Mule, *Histoplasma farciminosum* on the, 1815.
—, *Rhinosporidium seeberi* on the, in Brazil, 45.
—, *Sporotrichum schencki* on the, in Brazil, 413.
Muskrat (*Ondatra zibethica*), *Actinomyces bovis* on the, in U.S.A., 214.
— —, *Haplosporangium* on the, in U.S.A., 1895.
[Muskrat], *Trichophyton mentagrophytes* on the, in U.S.A., 23, 214.
Mustela frenata, see Weasel.
— *vison*, see Mink.
Mycal, use of, against dermatophytes, 1796, 2330.
Mycetoma on man, 2038; in Aden, 1197; America, 1551; Arabia, 877; Argentina, 464, 968; Austria, 2488; Brazil, 1240, 1932; Canada, 465, 528; Curaçao, 970; Egypt, 1447; France, 1196; India, 1429, 1933; Indonesia, 1429; Mexico, 105, 528; the Pacific Islands, 225; Palestine, 93, 981; Panama, 872; S. America, 1727; Sweden, 1564; the Tropics, 421; Turkey, 1931; U.S.A., 238, 317, 319, 320, 465, 466, 527, 528, 969, 973, 1284, 1319, 1559, 1726; Venezuela, 2220; affecting the foot, 466, 877, 968, 972, 973, 1197, 1447, 1726, 2220, 2488; hand, 973; nails, 1565; sinus, 1564; tibia, 969; associated with *Acremonium*, 85; *Acremoniella lutzii*, 343; *Actinomyces*, 465; *A. candidus*, 464; *A. gonadensis*, 464; *A. mexicanus*, 105; *A. pelletieri* var. *thodeidae*, 877; Actinomycetes, 1309; actinomycosis of the bladder, 238; *Allescheria boydii*, 43, 79, 85, 317, 318, 973, 1728, 1935; *Aspergillus*, 85, 174, 1196, 1727; *A. chevalieri*, 968; *A. niger*, 1726; *Candida*, 85; *C. brumpti*, 464; *Cephalosporium*, 85, 1319, 1932; *C. recifei*, 343; *Glenospora viridobrunnea*, 845; *Glenospora* spp., 1727; *Indiella*, 85; *Madurella*, 85, 382, 973; *M. mycetomi*, 85; (?) *M. americana*, 1197; *M. oswaldoi*, 85; *M. ramiroi*, 85, 968; *Monosporium sclerotiale*, 1727; *Nocardia asteroides*, 972, 1284, 1309, 1933, 2220; *Phialophora jeanselmei*, 529, 1372, 1717; *Sporobolomyces salmonicolor*, 2488; chromoblastomycosis wrongly attributed to, 1198; control of, 466, 527, 1197, 1559, 1565; culture medium for the isolation of fungi associated with, 971; epidemiology of, 1054; in relation to aspergillosis, 1727; review of, 342, 2368; tissue changes in, 1062.
— pedis in man in Curaçao, 779.
Mycids in epidermophytoses, 2320, 2328.
Mycilen ointment, composition of, 2203.
Mycocandida preferred to *Candida*, 753.
Mycocten, use of, against tinea pedis, 2526.
Mycophenolic acid, toxicity of, to pathogenic fungi, 648.
Mycoses, American manual of, 645; French account of, 2367; handbook on, 1056.
— of animals, British research on, 2225; transmission of, to man, 2374.
— of man, 2037, 2038, 2040; in Chile, 1710, 1941; Czechoslovakia, 2200; Finland, 2154; Germany, 1958, 2000, 2171, 2321; Great Britain, 423, 1554, 1557, 2226; Hungary, 222; India, 372; Sweden, 2147; the Tropics, 221; Uruguay, 1976; U.S.A., 47, 394, 1541; affecting the eye, 221, 222, 2214; foot, 394; hand, 47; lung, 2234; skin, 372; vagina, 2153, 2154; antibiotics predisposing to attacks by, 2468; classification of, 1609, 2370, 2375; control, 1541, 1826, 2000, 2153, 2214, 2321, 2381; diagnosis of, 1288, 1496, 1556, 1560, 1721; immunology of, 1816; isolation of fungi from, 2044, 2373; key to, 2375; survey of progress in diagnosis and treatment of, 424; of literature on, 2227; use of radiotherapy against, 231.
Mycotic dermatitis of the sheep, caused by *Actinomyces dermatomonus*, 263.
— endocarditis of man in U.S.A., 230; associated with *Candida guilliermondi*, 135; *C. parakrusei*, 135.

[Mycotic] granulomata on man in N. and S. America, 53.
— pulmonary cysts of man, 1709.
Mycotin, use of, against dermatophytoses, 2528.
Mycotorula on man in Germany, 162.
— *azymatica* on man in Germany, 162.
— *bronchialis* on man in Italy, 534.
— *chalmersi*, *Endomyces chalmersi* renamed, 845.
— *krausi*, *Cryptococcus krausi* renamed, 845.
— *messanensis* on man in Italy associated with dermatomycosis, 845.
— *pseudotropicalis*, *Endomyces pseudotropicalis* renamed, 845.
— *schawi* on man in U.S.A., 1724.
Mycotox, use of, against *Trichophyton interdigitale*, 2516.
Mycozol, use of, against *Microsporum equinum*, 633, 634.
Myosubtilin, effect of, on fungi pathogenic to man, 2025.
Myvizone, effect of, on *Nocardia*, 2068.
Myxal, use of, against microsporosis, 2331.

Naphthoquinones, effect of, on *Candida albicans*, 2151.
Nectaromyces rattus on the rat in Argentina, 1446.
Nekal bx, use of, against *Trichophyton interdigitale*, 2517.
Neo-antergan, effect of, on *Trichophyton mentagrophytes*, 2204.
Neoarsphenamine, inhibition of *Histoplasma capsulatum* by, 746.
Neogeotrichum pulmoneum identical with *Candida suaveolens*, 750.
Neomycin C, effect of, on pathogenic fungi, 1878.
— —, product of *Streptomyces fradiae*, 1878.
— sulphate, use of, against *Geotrichum*, 2288.
Neoplasia, differentiation between *Coccidioides immitis*, tuberculosis, and, 2122.
Neopyrithiamine, effect of, on growth of *Microsporum audouini*, 1981.
Nicotinic acid, conversion of tryptophane to, by *Trichophyton equinum*, 1767.
Nigrospora sphaerica in relation to allergic diseases of man, 1332.
Nipagin, use of, against epidermophytosis, 1778.
Nitrogen, effect of, on *Trichophyton mentagrophytes*, 2004.
Nocardia on man in (?) India, 2384; U.S.A., 1301, 2042, 2096, 2378; affecting the kidneys, 2384; associated with pulmonary mycosis, 2042; control, 2096, 2384; effect of streptomycin on, 2378; isolation of, from brain lesion, 2378; urine, 2384; tissue changes in, 1062. (See also *Actinomyces*.)
— *asteroides* can infect the mouse, 2050, 2060.
— — on the dog in Scotland, 1320.
— — on man, 666; in Algeria, 859; Argentina, 2393; Canada, 2238; Cuba, 50; Finland, 1069; France, 1582; Hawaii, 1070; Italy, 1309; Panama, 866, 972; Scandinavia, 2227; U.S.A., 431, 435, 668, 669, 1076, 1083, 1282, 1283, 1284, 1317, 1318, 1319, 1560, 1595, 2060, 2241, 2376, 2386; Venezuela, 2220; affecting the brain, 668, 2376, 2386; endocrine glands, 668, 2238; foot, 2220; heart, 668; intestines, 668; kidneys, 668; liver, 2238; lungs, 666, 866, 1076, 1318, 1319, 1582, 2060, 2215, 2238, (?) 2386; lymph node, 2238, 2386; muscles, 668; nervous system, 1070; pancreas, 2386; scalp, 859; skin, 2393; throat, 871; allergic properties of, 187, 262; antagonism of bacitracin to, 1571; associated with cerebromeningeal mycoses, 2039; mycetoma, 972, 1284, 1309; pulmonary mycoses, 2042; control, 669, 866, 871, 1069, 1070, 1076, 1318, 1582, 1595, 1827; culture of, 1822, 1921, 2386; diagnosis of, 1721; effect of aureomycin on, 2060; chloramphenicol (chloromycetin) on, 1834, 2060; copper-sulphonamide compounds on, 2223; mucin on, 2050, 2060; myvizone on, 2060; neomycin on, 1878; N, N-bis hydrazine on, 2060; penicillin on, 2060; sodium sulphadiazine on, 2068; streptomycin on, 2060; sulphadiazine on, 2060; terramycin on, 2060; tubercle bacillus concentration procedure on, 2215; identification of, 1060; inhibition of, by a product of *Aspergillus flavus*, 830; isolation of, from sputum, 1595, 2215, 2238; pathogenicity of, 187, 262.
[*Nocardia asteroides*] var. *decolor* on man in Brazil, 1057.
— *brasiliensis* on man in Brazil, 1057, 1306, (?) 2240; Mexico, 105, 255, 256; *Actinomyces mexicanus* synonym of, 659; antagonism of bacitracin to, 1571; associated with mycetoma, 105; control, 256, 730, 1827, 2240; effect of copper-sulphonamide compounds on, 2223; neomycin C on, 1878.
— *farcinica* on animals, (?) transmission of, to man, 2374.
— — on man, effect of chloromycetin on, 1834.
— *fastidiosa* on man in U.S.A., 2394.
— *intracellularis* on man in U.S.A., 1321; culture of, 1822; effect of chloromycetin on, 1834.
— *madurae* can infect the guinea-pig, 261.
— —, culture of, 345.
— — on man in Algeria, 191; Argentina, 675; Cuba, 50, 113; Greece, 200; India, 674, 1933; Italy, 1309; U.S.A., 1596; antagonism of bacitracin to, 1571; associated with cerebromeningeal mycoses, 2039; control of, 674; effect of aureomycin on, 2068; chloramphenicol on, 1834, 2068; myvizone and N, N-bis hydrazine on, 2068; neomycin C on, 1878; sodium sulphadiazine on, 2068; relation of, to pulmonary disease, 666.
— —, saltation in, 191.
— *mexicana*, effect of aureomycin, chloramphenicol, myvizone, and N, N-bis hydrazine on, 2068.
— *minutissima* on man, 977; in Denmark, 571; Germany, 1322; India, 1489; the Pacific Islands, 225; U.S.A., 1462, 1465; control, 1322; technique for staining, 1499.
— *tenuis* on man in Brazil, 130, 1576; U.S.A., 1462, 2242.
Nocardiosis of man in Finland, 2067; problems of differential diagnosis of tuberculosis and, 2067.
— of the mouse, effect of sodium sulphadiazine on, 2068.

Oidiomycin, allergic response to, 90, 173.
Oil medium for the culture of *Malassezia furfur* and *Pityrosporum ovale*, 966.
—, whale, use of, against epidermophytosis, 1505.
Oils, essential, action of, on *Trichophyton mentagrophytes*, 1523.
Ondatra zibethica, see Muskrat.
Onychia of man in Argentina, 2309; U.S.A., 2219; associated with *Aspergillus sydowi*, 11; *A. versicolor*, 11; *Candida albicans*, 13, 2219; *C. intermedia*, 13; *C. parakrusei*, 11, 13;

C. tropicalis, 13; *C. zeylanoides*, 13; fungi, 2309; *Hyalopus onychophilus*, 11; *Penicillium*, 11; *Scopulariopsis, Torulopsis minor, Trichophyton interdigitale*, and *T. rubrum*, 11; control, 2219.
Onychomycosis of man, 1555; in Australia, 2500; Canada, 1218; Denmark, 571, 627; France, 1249; Germany, 1961, 2328, 2516; Holland, 1448; Poland, 1449; Spain, 1959; Switzerland, 1974, 1975; U.S.A., 551, 1263, 1326, 1440, 1541, 1606, 1729, 2210, 2502; U.S.S.R., 2308; associated with *Aspergillus glaucus*, 688; *A. nidulans*, 688; *A. terreus*, 1326; *Candida albicans*, 1218, 1263, 1448; *C. intermedia*, 1974; *C. parapsilosis*, 1974; *Epidermophyton floccosum*, 1263; *Scopulariopsis brevicaulis*, 1974; *Trichophyton*, 2502; *T. interdigitale*, 2506; *T. mentagrophytes*, 1448, 1449; *T. rubrum*, 688, 1218, 1263, 1448, 1449, 1974, 2500; control, 1263, 1541, 1961, 2210, 2308, 2328; coexistent with tinea pedis, 1974, 1975; recent development in therapy of, in Spain, 1959.
Oospora antisera, reaction of, with *Cryptococcus neoformans*, 1358.
— in the air in Spain, 1847.
— on man in U.S.A., 1562.
— *gougeroti* on man in Germany, 1274, 1547, 2035; toxicity of aerosporin to, 1539.
— *variabilis* in the air in U.S.A., 1602.
Opossum, *Histoplasma capsulatum* on the, in U.S.A., 1698.
Orthovanillin paste, use of, against *Trichophyton interdigitale*, 2517.
Otitis, external, of man in the Tropics; control, 1327; mycotic external, (?) *Trichophyton* associated with, 378.
Otomycosis of man in Britain, 2226; S. Africa, 1325; U.S.A., 879, 880, 1031, 1462, 1465, 1608; associated with *Absidia corymbifera*, 473; *Actinomyces*, 880; *Aspergillus*, 879, 1325; *A. flavus*, 685, 880; *A. fumigatus*, 473; *A. glaucus*, 473, 880, 1465; *A. niger*, 473, 685, 880, 1465; *A. sydowi*, 473; *A. versicolor*, 1465; *Candida*, 879, 1031; *C. albicans*, 188; *Cryptococcus neoformans*, 879; dermatophytosis pedis, 627; *Mucor*, 879; *Penicillium*, 879, 880; *P. spinulosum*, 473; ringworm fungi, 1031; *Saccharomyces*, 879; *Torula*, 879; control, 1031; etiology of, 880; fungi in relation to, 1095.
Oxoid peptone, use of, in a culture medium, 1216.
Oxyquinoline sulphate, neutral, toxicity of, to *Microsporum audouini, Trichophyton schoenleini*, and *T. violaceum*, 2529.

Paecilomyces on man in U.S.A., 1562.
Para-aminobenzoic acid, effect of, on dermatophytes, 1495, 1517; inhibition of *Actinomyces brasiliensis* and *Paracoccidioides brasiliensis* by, 730.
Para-amino-salicylic acid, effect of, on oxygen uptake of *Microsporum canis* in culture, 2506.
Paraben, effect of, on *Candida albicans* and *C. krusei*, 2476.
Para-bromophenoxypropyl thiocyanate, effect of, on fungi pathogenic to man, 2224.
Para-chlor-benzoic acid sodium, as a new antimycotic, 2359.
Parachlorometacresol, toxicity of, to *Epidermophyton floccosum* and *Trichophyton interdigitale*, 1026.
Parachlorometaxylenol, toxicity of, to *Epidermophyton floccosum* and *Trichophyton interdigitale*, 1026.
Parachlorophenol-α-glycerol ether, toxicity of, to various fungi attacking man, 1030.
Para-chlorophenoxetal, effect of, on dermatophytes, 2018.
Paracoccidioides, classification and nomenclature of, 531.
— on man, review of, 509.
— *brasiliensis* on man, 304; in America, 1551; Argentina, 145, 512, 731, 912, 913, 914, 915, 916, 919, 1131, 1134, 1203, 1876, 2261; Brazil, 57, 132, 145, 146, 301, 302, 303, 305, 511, 696, 728, 729, 917, 1126, 1127, 1128, 1129, 1130, 1132, 1133, 1134, 1135, 1349, 1368, 1369, 1640, 1643, 1644, 1645, 1647, 1648, 1649, 2115, 2258, 2260, 2419, 2420; Colombia, 2116; Costa Rica, 1874; Paraguay, 145, 1134; Peru, 145; Uruguay, 1641, 1642, 1875; U.S.A., 1859; U.S.A. from Colombia, 918; Venezuela, 145, 510, 2220; affecting the adrenal gland, 2260, 2420; bones, 1643; brain and nervous system, 1647, 1648; larynx, 912; lungs, 132, 731; lymph glands, 913, 1649; mouth, 303, 916, 1130, 1131, 1644, 2261; rectum, 1369, 1640; associated with cerebro-meningeal mycoses, 2039; control, 302, 305, 696, 730, 912, 915, 919, 1127, 1129, 1133, 1134, 1135, 1292, 1369, 1643, 1645, 1646, 1875; culture of, 918, 1642, 1875; from the blood stream, 1126; detection of, 1368; diagnosis of, 728, 1645, 1721, 2114; effect of blastomycetin, coccidioidin, and paracoccidioidin on, 1349; rimocidin on, 2218; trimeton maleate on, 1819; on reticulo-endothelial system of inoculated guinea-pigs, 732; epidemiology of, 1054; following dental extraction, 729, 1874, 2258; histological differentiation between *Blastomyces dermatitidis* and, 1641; *Paracoccidioides cerebriformis* and, 1347, 1348; inhibition of, by dithiocarbamylhydrazine, 1111; by para-amino-benzoic acid, 730; isolation of, from sputum, 1203; medium for, 644; morphology of, 304, 511, 1128, 1351, 1370, 1877, 2419; compared with *H. capsulatum*, 1925; multiple budding, 1350, 1642; *P. tenuis* identical with, 1347, 1348; physiology of, 1622, 2379; production of an ethylene-like gas by, 1108; radiate formation in, 650; renamed *Aleurisma brasiliensis*, 2259; review of, 509, 852, 2368; tissue changes in, 1062; tolerance of, to streptomycin sulphate, 855; transmission of, through hides, 1645.
— *cerebriformis* on man, 309; cultural characters of, 309; differentiation of *P. brasiliensis* from, 1347, 1348.
— *tenuis* on man identical with *P. brasiliensis*, 1347, 1348.
Paracoccidioidin, effect of, on *Paracoccidioides brasiliensis*, 1349; valueless in the diagnosis of mycoses, 144.
Para-hydroxymethyl benzoate, effect of, on pathogenic fungi, 2020.
Paranitrophenol, toxicity of, to *Epidermophyton floccosum* and *Trichophyton interdigitale*, 1026.
Para-oxybenzoic acid, use of, against *Candida albicans* and *Trichophyton griseiforme*, 2524.
Para-oxybenzoate, effect of, on *Trichophyton interdigitale*, 1786.
Paraquinone, toxicity of, to fungi attacking man, 853.
Paronychia of man in U.S.A. associated with *Candida albicans*, 2219.
Pelargonic acid, effect of, on dermatophytes, 1506, 2533.

Penguin, *Aspergillus fumigatus* on the, in Australia, 1612.
Penicillin, use of, with trichophytin, 2003; effect of, on *Actinomyces bovis*, 2068; *A. israeli*, 1834; *Cryptococcus neoformans*, 1866, 2256; *Microsporum audouini* and *M. canis*, 2341; *Nocardia asteroides*, 2060; *Sporotrichum schencki*, 2102; ineffectual against *Allescheria boydii*, 778; *Coccidioides immitis*, 299, 726, 1142; *Paracoccidioides brasiliensis*, 696; predisposing to attacks by *Aspergillus*, 2402; *A. fumigatus*, 2401; *Candida*, 1941, 2483; *C. albicans*, 1942, 2291, 2470, 2483; resistance of fungi to, 849; *Blastomyces dermatitidis* to, 1104; use of, against *Actinomyces*, 663, 669, 670, 1075, 1077, 1083, 1087, 1091, 1577, 1586, 1589, 1590, 2072, 2239; *A. bovis*, 436, 857, 872, 2063, 2077; on cattle, 2396; *A. farcinicus*, 1093; *A. israeli*, 1078, 1080, 1081, 1084, 1085, 1088, 1089, 1091, 1284, 1300, 1307, 1314, 1315, 1839, 1840, 2066, 2073, 2074, 2079, 2230, 2237, 2391; *A.* [or *Nocardia*] *madurae*, 674; *A. muris-ratti*, 1842; *A. necrophorus*, 440; *A. septicus*, 874; against actinomycosis, 434, 435, 437, 441, 442, 445, 450, 452, 457, 460, 609, 661, 667, 863, 866, 871, 1296, 1297, 1298, 1300, 1303, 1319, 1578, 1579, 1581, 1588, 1599, 1836, 1837, 1838, 2078, 2233, 2235; *Aspergillus brodeni*, 2248; *Blastomyces dermatitidis*, 892, 1343, 1355; *Candida albicans*, 542, 1443; *Cephalosporium granulomatis*, 778; *Cryptococcus neoformans*, 1118, 1284, 1367, 1866; dermatophytosis, 1994; accompanied by streptococcal infection, 607; *Microsporum*, 1507; *M. audouini*, 1519; *M. fulvum*, 609; mycoses of man, 1559, 2381; *Nocardia asteroides*, 669, 1070, 1318, 1319, 1582, 1595; *Trichophyton interdigitale*, 1704; pyogenic superinfections associated with, 2517; *T. mentagrophytes*, 608, 609, 1006, 1540; *T. rubrum*, 609; *T. tonsurans*, 608.
Penicillium, effect of hexylresorcinol on, 1292; of, on *Trichophyton mentagrophytes* and *T. sabouraudi*, 2353; electrostatic precipitation of, from the air, 1101.
— in the air in Brazil, 1848; France, 1850; Mexico City, 268, 1600; Puerto Rico, 1605; Spain, 1847, 2085; Sweden, 1604; U.S.A., 175, 681, 888, 1337, 1601, 1602, 1851.
— in dust, in relation to asthma, 1103; in house dust in Denmark, 1603; in relation to allergic diseases, 1334.
— on the horse, 157.
— on man in Argentina, 11; Costa Rica, 67; England, 884; Finland, 1455; Switzerland, (?) 1856; U.S.A., 879, 880, 1283, 1562, 2042; affecting the tonsils, 952; allergic response to, 479, 886, 1603, 1604, 1605, 1846; associated with asthma, 884; onychia, 11; otomycosis, 879, 880; pulmonary mycosis, 67; review of, 852; technique for preparing extracts of, 1338.
— on poultry, control, 2403.
— *albicans* in air and dust in U.S.A., 1602.
— *capreolinum*, allergic response to, 887.
— *citrinum* in the air in U.S.A., 1337, 1602.
— — in dust in U.S.A., 1602.
— — on man in U.S.A., 2091.
— *expansum* on man, effect of penotrane on, 2053.
— *frequentans* in the air in U.S.A., 1337, 1602.
— — in dust in U.S.A., 1602.
— *funiculosum*, allergic response to, 887.
— *glaucum* on man, 229.
[*Penicillium*] *lilacinum*, technique for culturing, 1964.
— *notatum*, complement fixation tests with, 838.
— — in the air in U.S.A., 1337.
— —, effect of penotrane on, 2053.
— *roquefortii*, allergic response to, 887.
— *sanguineum* on man in Chile, 270.
— *spinulosum* in the air in U.S.A., 1337.
— — on man in U.S.A., 473.
— *tardum*, allergic response to, 887.
— *zaleskii*, allergic response to, 1849.
— — in the air in U.S.A., 1849.
Penotrane, effect of, on moulds, 2053.
Pentachlorophenol, fungicidal effect of, 2013; use of, against fungi on shoes, 630.
Percoccide, use of, against *Actinomyces israeli*, 2391.
Periodic-acid-Schiff stain for fungi in tissue, 1824.
Perionychia of man in India, associated with *Actinomyces keratolytica* and *Candida*, 1241.
Perionixis associated with *Candida triadis*, 193.
'Perlèche' caused by *Candida* spp., 543.
Petrolatum, use of, with spergon, 2177.
Petroleum oil, use of, for sterilization of barbers' instruments, 1466.
Peyronellaea on man in Germany, 2040.
Pharyngomycosis associated with *Candida albicans*, 181.
Phemerol, germicidal efficacy of, 44; use of, against *Trichophyton tonsurans* on calves, 1037.
Phenanthraquinone-9, 10, fungistatic action of, 1260.
Phenanthrolines, effect of, on pathogenic fungi, 2217.
Phenol derivatives, use of, against dermatophytes, 1515, 1518, 1527.
—, fungicidal effect of, 2013; use of, against chromoblastomycosis, 2263.
— mercuric acetate, use of, against dermatophytoses, 621; *Trichophyton* on leather, 631.
— — chloride, use of, against dermatophytoses, 621.
— — dinaphthylimethane-disulphonate, see Penotrane.
— powder, use of, against *Trichophyton mentagrophytes*, 1768.
Phenol-camphor, use of, against dermatophytosis, 393, 625.
Phenolic ether, halogenates of, and phenoxyethanols, toxicity of, to *Trichophyton mentagrophytes*, 1025.
Phenyl acetate, use of, against *Epidermophyton floccosum*, 399.
— mercuric acetate, effect of, on dermatomycetes, 1035, 1784, 1786.
— — benzoate, use of, against dermatophytoses, 1035.
— — borate and nitrate, use of, against fungous diseases of the feet, 36.
— — chloride, use of, against *Epidermophyton floccosum*, 399; dermatophytoses, 1035.
— — lactate, use of, against epidermophytosis, 1542.
— — nitrate, use of, against *Microsporum audouini*, 1984; use of, against ringworm of man, 1266.
— — ointment, use of, against ringworm of the dog, 1038.
Phenylmercuri-9-acetoxy-12-octadecanoic acid, toxicity of, to *Epidermophyton floccosum* and *Trichophyton interdigitale*, 1026.
Phialoconidiophora, the genus, 1650.

[*Phialoconidiophora*] *guggenheimia* congeneric with *Phialophora compacta*, *P. pedrosoi*, and *P. verrucosa*, 1372.
Phialophora on man in Brazil, 1879; the Cameroons, 1136; affecting the feet, 1136; hand, 1198; leg, 1879; control, 1879; wrongly attributed to mycetoma, 1198.
— *compacta* on man, 2038; in Panama, 1061; U.S. Army, 1234; effect of rimocidin on, 2218; epidemiology of, 1054; influence of culture media on, 1651; review of, 1880; taxonomy of, 14.
— *jeanselmei* can infect the rabbit, 529.
— — on man in S. America, 1727; U.S.A., 530; biological characters of, 530, 1372; in relation to mycetoma, 529; radiate formation in, 650; *Torula jeanselmei* renamed, 530.
— *macrospora* synonym of *Fonsecaea pedrosoi* var. *phialophorica*, 14; of *P. verrucosa*, 283.
— *pedrosoi* can infect the guinea-pig, 710; mouse, 495; rat, 710.
— — on man, 710, 1568, 1650, 2037, 2038; in Argentina, 96; Brazil, 288, 496, 1372, 1880; the Canal Zone, 494; Colombia, 2116; Costa Rica, 2262; Cuba, 3, 286; Indonesia, 897; Mexico, 70; Madagascar, 497; Panama, 708, 1137, 1138; S. Africa, 129, 709; U.S.A., 58, 283, 1371, 1859; U.S. Army, 1234; Venezuela, 289, 2220; affecting the foot, 494; control, 289, 708, 1138, 2223; culture of, 2221; cytoplasmic inclusions in, 651; diagnosis of, 1880; effect of copper-sulphonamide compounds on, 1827, 2223; neomycin C on, 1878; epidemiology of, 1054; geographical distribution of, 289; identification of, 1060; in relation to chromoblastomycosis, 494, 496; new form of disease induced by, 1137; review of, 1880, 2368; taxonomy of, 14, 70, 283; tissue changes in, 1062.
— *verrucosa* on man, 496, 2037, 2038; in Algeria, 284, 285; Argentina, 96; Belgian Congo, 2422, 2423; Brazil, 1880; Ceylon, 2117; Costa Rica, 2262; Indonesia, 897; Uruguay, 1976; U.S.A., 58, 283, 290, 382, 1559, 1859, 2421; U.S. Army, 1234; affecting the feet, 2422, 2423; hand, 2421; characters of, 1372; control, 2422; culture of, 2221, 2421; diagnosis, 1880; epidemiology of, 1054; effect of streptomycin on, 1285; effect of neomycin C on, 1878; rimocidin on, 2218; fatty cytoplasmic inclusions in, 651; influence of culture media on, 1651; in relation to chromoblastomycosis, 497; review of, 1880, 2368; synonymy of, 14, 283; toxicity of paraquinone to, 853; plumbagol to, 856; virulence of, 31.
Phoma, allergic response to, 886; technique for preparing extracts of, 1338.
— in the air in France, 1850.
Phosphorus, radio-active, effect of, on fungi, 1290.
Phthiocol, toxicity of, to fungi attacking man, 856.
Phycomyces in the air in U.S.A., 1337.
Pichia, Candida krusei imperfect state of, 750.
Piedra of man in Venezuela, associated with *Piedraia hortai*, 2220; *Trichosporon beigelii*, 2220.
—, white, see *Trichosporon beigelii*.
Piedraia colombiana synonym of *P. hortai* and *Trichosporon beigelii*, 18.
— *hortai* on man in Brazil, 591, 592, 1240; Paraguay, 18; Uruguay, 1976; Venezuela, 2220; gloeae in, 650; synonymy of, 18; taxonomy of, 591.
[*Piedraia*] *malayi* on man in Malaya, 1746; differentiation of, from *P. hortai*, 1746.
— *sarmentoi*, *P. surinamensis*, and *P. venezuelensis* synonyms of *P. hortai*, 18.
Pig, *Absidia lichtheimi* [*A. corymbifera*] on the, in (?) Holland, 155.
—, *Actinomyces* on the, in U.S.A., 679.
—, actinomycosis of the, in U.S.A., 28.
—, *Coccidioides immitis* can infect the, 927.
Pigeon, *Aspergillus fumigatus* can infect the, 689, 1329.
—, — *nidulans* can infect the, 1851.
—, — *septatus* can infect the, 266.
—, *Candida* on the, 158.
—, — *albicans* on the, in Uruguay, 1952.
—, *Geotrichoides* on the, 158.
Pine marten (*Martes americana*), *Haplosporangium* on the, in U.S.A., 1895.
Pinoy, P. E., obituary of, 1811.
Pinta of man in Venezuela and fungi in relation to, 344.
Piridin, see Pyridin.
Pityriasis rosea of man in Germany, 2328; use of *Trichophyton* extract against, 613.
— simplex faciei of man in Brazil, 2350.
Pityrosporum orbiculare on man in U.S.A., 2366.
— *ovale* on the dog and llama, 2491.
— — on man in Germany, 1770; India, 182; the Middle East, 555; biology of, 1052; culture medium for, 966; diagnosis of, 1770; effect of undecylenic acid on, 2216; serology of, 182.
— —, non-pathogenicity of, 2491.
Plant extracts, effect of, on fungi, 2323.
Plebrocon, use of, against *Epidermophyton*, 1995.
Pleospora in the air in U.S.A., 681.
(?) — *herbarum* in the air in U.S.A., 1337.
Plumbagol, toxicity of, to pathogenic fungi, 856.
Podophyllin, use of, against *Microsporum audouini* and *M. canis*, 1795; tinea capitis, 2022.
Podophyllotoxin, use of, against *Microsporum audouini*, 2351.
Polymyxin, aerosporin identical with, 1539.
Polymyxins, fungicidal properties of, 2312.
Polyvinyl alcohol, use of, for making permanent mounts, 2046.
Pompholyx, etiology of, 652.
Potassium hydroxide, use of, in examination of dermatophytes, 1963, 2162, 2314, 2315, 2364, 2463.
— iodide, use of, against *Actinomyces bovis*, 2246, 2396; *A. funduliformis*, 671; *A. israeli*, 1078, 1080, 1081, 1284, 1307, 2231, 2237; *A. serophilus*, 876; actinomycosis of man, 443, 863; *Aspergillus fumigatus*, 686, 1852; *Blastomyces dermatitidis*, 1284, 1860, 2097; blastomycosis, 1616; *Candida*, 196, 2479; *C. albicans*, 546, 960, (?) 1202, 1943, 1947; *Cephalosporium*, 204; *Coccidioides immitis*, 1386; *Cryptococcus neoformans*, 486, 703, 1119, 2414; mycetoma of man, 527; onychomycosis, 2308; *Sporotrichum schencki*, 637, 639, 841, 842, 1045, 1272, 1805, 1806, 2548; tinea tonsurans, 1503; *Trichophyton mentagrophytes*, 1006. See also Iodine therapy.
— permanganate, use of, against athlete's foot, 556; *Candida albicans*, 1440; dermatomycosis, 556, 558; *Microsporum audouini*, 386; *Trichophyton mentagrophytes*, 1006, 2518.
— tellurite, use of, in isolating *Candida* spp., 2462.
— thioglycollate, use of, against onychomycoses, 1961.

Poultry, *Aspergillus fumigatus* on, in New Zealand, 1614.
—, *Candida albicans* on, in England, 2159; New Zealand, 1614.
—, — *krusei* on, in England, 2159.
—, *Geotrichum* on, in England, 2159.
—, infectious coryza of, *Penicillium* in relation to, in Germany, 2403.
— moniliasis in England, (?) 1953, 1954.
—, *Trichophyton gallinae* can infect, 2365.
Pragmatar, use of, against *Trichophyton rubrum*, 1239, 1479.
Prehn's powder, composition of, and use of, against ringworm, 626.
Primulin, use of, for detecting *Paracoccidioides brasiliensis*, 1368, 1370.
Pringsheimia in the air in U.S.A., 681.
Proactinomyces asteroides, see *Nocardia asteroides*.
— *pseudomadurae* on man in Italy, 1309.
Prodigiosin, production of, from *Serratia marcescens*, 1662; use of, against *Coccidioides immitis*, 1662, 2432; mycoses of man, 2381.
Promin, use of, against *Blastomyces dermatitidis*, 1341.
Prontosil, use of, against *Trichophyton mentagrophytes*, 1768.
Propamidine, toxicity of, to pathogenic fungi, 616; use of, against *Blastomyces dermatitidis*, 1620, 2096, 2409.
Propionic acid, toxicity of, to *Trichophyton mentagrophytes*, 817; use of, against dermatophytes, 1262, 1267, 1501, fungus infections, 825; tinea pedis, 617.
Propylene alcohol, use of, against *Microsporum audouini*, 1532.
— glycol, toxicity of, to *Candida albicans* and *Trichophyton mentagrophytes*, 817; use of, against *Microsporum audouini*, 1532; tinea, 2023.
— — dipelargonate, toxicity of, to *Microsporum audouini*, 1258.
— — dipropionate, toxicity of, to *Microsporum audouini*, 1258; use of, against dermatophytoses of the feet, 1021.
— — esters, use of, against ringworm of cattle, 832.
— phenoxetol, effect of, on dermatophytes, 2018; technique for determining fungistatic ability of, 2541.
Protoanemonin, effect of, on *Coccidioides immitis*, 1893; production of, from Ranunculaceae, 1893.
Provence reed disease of man in France, 684.
Pruritis ani and pruritis vulvae of man, control, 1826.
Pseudallescheria sheari on man in Argentina, 526.
Pseudococcidioides a synonym of *Coccidioides*, 1147.
— *mazzai* a synonym of *Coccidioides immitis*, 507.
'Pseudokerion' induced by salicylanidide ointment, 1783.
Pseudomadurella a subdivision of *Madurella*, 777.
Pseudomonas aeruginosa on man in U.S.A., 2301.
Puccinia in the air, 1336.
— *dichondrae* and *P. purpurea* in relation to allergic diseases, 1331.
Puffinus leucomelas, *Aspergillus fumigatus* on, in Japan, 68.
Pullularia, allergic response to, 886.
— in the air in Sweden, 1604; U.S.A., 175.
— *pullulans* on man in Argentina, 2309.
Pulmonary mycosis of man in Argentina, 335, 666, 667; Australia, 687; Cuba, 334; U.S.A., 142, 149, 336; associated with *Actinomyces violaceus*, 147; *Aspergillus fumigatus*, 133; *Candida*, 20, 128, 196; *C. albicans*, 134; *C. krusei*, 336; *C. pseudotropicalis*, 336; *Coccidioides immitis*, 127; *Paracoccidioides brasiliensis*, 132; various fungi, 142; diagnosis of, 336; history of, 1201; monograph on, 331; relation of *Actinomyces* spp. to, 666.
Purple X bulb, use of, in diagnosis of fungous diseases of the scalp, 996.
Pyribenzamine, effect of, on dermatophytes, 1569, 2204.
Pyridin, effect of, on *Phialophora pedrosoi*, 1827; use of, against *Paracoccidioides brasiliensis*, 302.
3-pyridinethiol metal derivatives, fungistatic properties of, 1789.
Pyridoxine, effect of, on *Microsporum audouini*, 987; *Trichophyton discoides*, 1242.
Pyridyl 3-zinc mercaptide, use of, against *Malassezia furfur*, *Microsporum*, and *Trichophyton*, 1516.
Pyrimidine a growth factor for *Sporotrichum schencki* and *S. tropicale*, 2034.
Pyrogallol vaseline, use of, against *Microsporum audouini*, 1985.

Rabbit, *Acremonium cinnabarinum* can infect the, 264.
—, *Actinomyces bovis* can infect the, 233.
—, — *serophilus* can infect the, 876.
—, *Aspergillus fumigatus* can infect the, 689, 881, 1099, 1329.
—, — *nidulans* can infect the, 1096.
—, — *septatus* can infect the, 266.
—, *Candida* on the, 158.
—, — *albicans* can infect the, 756, 758, 957; on the, 24; in France, 537.
—, — *brumpti* on the, 24.
—, — *parakrusei* on the, 24; in France, 537.
—, *Geotrichoides* on the, 158.
—, *Haplosporangium* on the, in U.S.A., 1895.
—, *Histoplasma capsulatum* can infect the, 27, 1906.
—, *Microsporum* can infect the, 2193.
—, moulds can infect the, 2051; toxic to the, 1328.
—, *Phialophora jeanselmei* can infect the, 529.
—, *Saccharomycopsis guttulatus* can infect the, 775; on the, in France, 2485.
—, toxicity of filtrates of *Aspergillus flavipes*, *A. fumigatus*, and *A. niger* to the, 66.
—, *Trichophyton album* can infect the, 1270.
—, — *camerounense* can infect the, 979.
—, — *discoides* can infect the, 1270.
—, — *mentagrophytes* on the, 2201.
—, — *rubrum* on the, 383, 1015; immunization against, 1799.
Radiate formation in various fungi in human tissue, 650.
Radio-iodine, use of, as a tracer, 1572.
Radiotherapy, use of, against *Candida* on man, 324; mycotic infections, 231; ringworm of man, 371.
Raphanin, effect of, on some fungi pathogenic to man, 1793; isolation of, from radish seed, 1793.
Rat, *Actinomyces* can infect the, 164.
—, — *muris-ratti* on the, in Sweden, 2243.
—, *Aspergillus fumigatus* on the, 267.
—, *Candida* on the, 158.
—, — *albicans* on the, 24; in France, 537.
—, — *brumpti* on the, 24; in France, 537.
—, — *parakrusei* on the, 24.
—, *Cephalosporium acremonium* can infect the, 532.

[Rat], *Cryptococcus* on the, in U.S.A., 1194.
—, — *neoformans* can infect the, 1115, 1118.
—, *Geotrichoides* on the, 158.
—, *Histoplasma capsulatum* on the, in U.S.A., 1195, 1427, 1698.
—, *Mycotorula schawi* can infect the, 1724.
—, *Nectaromyces rattus* on the, in Argentina, 1446.
—, *Phialophora pedrosoi* can infect the, 710.
—, *Sporotrichum schencki* on the, serology of, 2036.
Resorcinol, use of, against fungus infections of the feet, 826.
Rhinocladium equi, serology of, 1279.
Rhinosporidiosis of man in Uganda, 8.
Rhinosporidium seeberi on animals, (?) transmission of, to man, 2374.
— — on cattle in India, 783, 1815; Uruguay, 1815.
— — on the horse in Argentina, 784; India, 783, 1815; S. Africa, 1815; Uruguay, 1815.
— — on man in Argentina, 554; Brazil, 1731; Colombia, 2116; Cuba, 347; England, 553; Persia, 1214; the Tropics, 421; Uganda, 875; Uruguay, 1730; U.S.A., 74, 212, 346, 1213, 1559; U.S. Army, 1234; affecting the eye, 212, 1213, 1214; nose, 1214; skin, 1234; cytoplasmic inclusions in, 651; geographical distribution of, 346; review of, 2368.
— — on the mule in Brazil, 45.
Rhizopus in the air in Spain, 2085.
— on animals, (?) transmission of, to man, 2374.
— on man in Chile, 270; Mexico, 1600; U.S.A., 1562; allergic response to, 1334, 1600; hemp workers' disease in relation to, 270; toxicity of hexylresorcinol to, 1292.
— *nodosus* in the air in Spain, 1847.
— *pygmaeus*, endotoxin in, 2380.
— *rhizopodiformis* on animals in Germany, 215.
— *stolonifer* in the air in Spain, 1847.
— — on man, effect of penotrane on, 2053.
— —, toxicity of, to rabbits, 1328.
— *suinus* on animals in Germany, 215.
Rhodotorula in the air in Brazil, 1848.
— on man in Argentina, 96; Chile, 491; U.S.A., 1732.
—, effect of antibiotic XG on, 2026.
— *rosea* var. on man in Germany, 162.
Ricinoleic acid, use of, against *Candida albicans*, 2299.
Rimocidin, effect of, on pathogenic fungi, 2218; production of, from *Streptomyces rimosus*, 2218.
Ringworm, centenary of Erasmus Wilson's book on, 978.
— of animals, 635, 1050; in Great Britain, 1058; effect of, on leather, 1271.
— of the cat in England, 1000.
— of cattle in Fiji, 1543; U.S.A., 832, 1270.
— of the dog in Britain, 1000, 1038.
— of the horse in Fiji, 1543; Germany, 165; S. Africa, 1269.
— of man in Algeria, 800, 801; the Belgian Congo, 1487; Brazil, 371; the British Army, 1255; England, 143, 370, 575, 1266; India, 372, 1237, 1489; Mexico, 799; U.S.A., 71, 556, 561, 603, 628, 793, 794, 796, 995, 1270; U.S. Navy, 376; affecting the feet, 4; glabrous skin, 141; affecting the scalp, 143, 584, 603, 794, 795, 796, 799, 800; toes, 628; age in relation to, 371; associated with *Candida*, 4; control, 71, 141, 143, 182, 393, 556, 603, 621, 628, 995, 999, 1255, 1266, 1534; culture and identification of fungi causing, 575; diagnosis of, 143.
[Ringworm], see also *Epidermophyton*; *Microsporum*; tinea; *Trichophyton*.
Rodents, *Coccidioides immitis* on, in U.S.A., 30, 100, 116, 126, 513.
—, *Haplosporangium parvum* on, in U.S.A., 116, 126, 513; Canada, 920.
—, intestinal mycoflora of, in France, 773.
Roentgen rays, see X-rays.
Rubromadurella, a subdivision of *Madurella*, 777; on man, taxonomy of, 974.
— *langeroni*, radiate formation in, 650.
Rusts in relation to allergic diseases, 1334.

Sabouraudites audouini, see *Microsporum audouini*.
— *duboisi*, see *Microsporum duboisi*.
— *gallinae*, see *Trichophyton gallinae*.
— *langeroni*, see *Microsporum langeroni*.
— *rivalieri* on man in the Belgian Congo, 2546.
Saccharomyces in the air in Brazil, 1848; Sweden, 1604.
— on man in Finland, 2154; Germany, 162; U.S.A., 142, 879; associated with otomycosis, 879; pulmonary mycosis, 142; differential medium for, 2462.
— *cerevisiae* in the rabbit, 533.
— —, serology of, 322, 533, 961.
— —, technique for determining antibiotic activity of, 1785.
— *glomerulatus* on man, 229.
— *guttulatus*, see *Saccharomycopsis guttulatus*.
— *hominis* on man, 142, 229.
— *laryngitidis* on man in France, 1444.
Saccharomycetes on man in Italy, 1713, 1714; in the vagina, 1432.
Saccharomycopsis guttulatus can infect the rabbit, 775.
— — on the rabbit in France, 2485.
— — on rodents in France, 773.
Salicil, fungistatic properties of, 1256.
Salicyl vaseline, use of, against *Trichophyton mentagrophytes*, 1768.
Salicylanilide, use of, against *Microsporum audouini*, 795, 1258, 1259, 1466, 1470, 1471, 1502, 1511, 1531, 1755, 1783, 1801, 1972, 1984, 2179, 2183; *M. canis*, 1511, 1972; superficial mycoses, 1541; *Trichophyton sulphureum*, 1511.
Salicylated collodion, use of, against dermatophytoses, 1965.
— vaseline, use of, against *Trichophyton interdigitale*, 1529.
Salicylic acid, fungistatic properties of, 1256; use of, against chromoblastomycosis, 2263; dermatophytosis, 218, 377, 406, 558, 627, 818, 826, 1255, 1256, 2195, 2210, 2341; *Epidermophyton floccosum*, 217, 1788; *Microsporum audouini*, 1984; *M. equinum*, 634; onychomycosis, 2308; *Piedraia malayi*, 1746; ringworm of cattle, 832; the horse, 1269; seborrhoeic dermatitis, 558; *Trichophyton interdigitale*, 217, 626, 803, 1011, 2358; *T. mentagrophytes*, 815, 2518; *T. rubrum*, 581, 803; *T. tonsurans*, 2210.
Salmon, *Saprolegnia* on the, in Great Britain, 1058.
Sarcoidosis of man, *Blastomyces dermatitidis* associated with, 1619.
Scapanus townsendii, *Coccidioides immitis* on, in U.S.A., 1157.
Scedosporium apiospermum conidial state of *Allescheria boydii* (q.v.), 317, 1934.
Schamberg-Kolmer method of testing fungicides, 2195.

Schaumann's disease, fungi in relation to, 653.
Schizophyllum commune on man in U.S.A., 1729.
Schizosaccharomyces hominis, see *Blastomyces dermatitidis*.
— *ovis* on sheep, 2305.
Scopulariopsis in the air in France, 1850.
— on man in Argentina, 11; control, 2359.
— *americana* on man in Tunis, isolation of, from tumour associated with *Blastomyces dermatitidis*, 2407.
— *brevicaulis* on man in Switzerland, 1973, 1974, 1975.
Seborrhoeic dermatitis of man in the U.S. Navy, 558.
Sepedonium on man in U.S.A., 1562.
Septicemia of man, *Geotrichum* associated with, in U.S.A., 2288.
Serology, see under pathogens.
Serratia marcescens, production of prodigiosin by, 1662.
Sheep, *Actinomyces dermatomonus* on the, in India, 468; Western Australia, 263.
—, actinomycosis of the, in U.S.A., 28.
—, *Candida* on, in S. Africa, 2305.
—, *Coccidioides immitis* on, in U.S.A., 1155.
—, dermatitis of, in India, 1597.
—, histoplasmin sensitivity in, 2282.
—, *Monilia* on, see *Candida* on.
—, *Mucor* on, in S. Africa, 2305.
—, *Schizosaccharomyces ovis* on, 2305.
Shorea robusta juice as the cause of dhobie itch, 401.
Silkworm, *Beauveria bassiana* on the, 2225.
Silver nitrate, use of, against auricular aspergillosis, 180; *Blastomyces*, 1618.
Singapore ear in Malaya, 563.
Skunk (*Mephitis hudsonica*), *Haplosporangium* on the, in U.S.A., 1895.
—, *Histoplasma capsulatum* on the, in U.S.A., 1427, 1698.
Smuts in relation to allergic diseases, 1334.
Soap, transmission of *Microsporum* and *Trichophyton* by, 599.
Sodium azide, toxicity of, to fungi, 426.
— bisulphite, use of, against fungi on shoes, 630.
— caprate, toxicity of, to *Actinomyces bovis* and other fungi, 436.
— caprylate, toxicity of, to *Actinomyces bovis* and other fungi, 436; use of, against *Candida albicans*, 768; *Coccidioides immitis*, 2263a; dermatophytes, 1262.
— dioctyl sulphosuccinate, use of, against athlete's foot and *Candida albicans*, 379.
— ethylmercurithiosalicylate, toxicity of, to dermatophytes, 1026.
— fluoride, effect of, on *Candida krusei* and *Cryptococcus neoformans*, 953.
— hydroxide, effect of, on fungi causing pulmonary mycoses, 2215.
— iodide, effect of, on chromoblastomycosis, 2263; use of, against *Actinomyces bovis* on cattle, 2396; *Candida albicans*, 536, 546; pulmonary moniliasis, 196. See also Iodine therapy.
— iodoxyquinolinsulphonate, use of, against *Trichophyton concentricum*, 802.
— propionate derivatives, fungicidal action of, 2377; toxicity of, to *Actinomyces mexicanus* and *Cephalosporium*, 256; *Blastomyces dermatitidis*, *Histoplasma capsulatum*, *Microsporum canis*, *Trichophyton mentagrophytes*, 436; use of, against *Candida albicans*, 1440; dermatophytes, 398, 1262, 1267; fungus infections, 396, 397; of the feet, 617, 818; *Microsporum*, 1258, 1511; *Trichophyton*, 1511.
[Sodium] propionates, use of, against vulvovaginitis, 2153.
— salicylate, use of, against *Microsporum equinum*, *Trichophyton equinum*, and *T. schoenleini*, 834.
— sulphadiazine, effect of, on *Actinomyces bovis* and *Nocardia*, 2068; toxicity of, to *Trichophyton mentagrophytes* and *T. rubrum*, 34.
— sulphamerazine, use of, against *Phialophora pedrosoi*, 436; *Sporotrichum schencki*, 410.
— sulphathiazole, use of, against *Histoplasma capsulatum*, 436.
— sulphide, use of, against onychomycosis, 2308.
— tetradecyl sulphate, use of, against *Microsporum audouini*, 1532.
— thiosulphate, use of, against dermatophytes, 1322.
— undecylenate, toxicity of, to *Actinomyces bovis* and other fungi, 436; use of, against athlete's foot, 398.
Soil, *Allescheria boydii* in, in U.S.A., 2145.
—, fungi pathogenic to man in, 2221.
—, *Histoplasma capsulatum* in, in U.S.A., 1428, 2145.
Soluthiazole, effect of, on *Cryptococcus neoformans*, 1361.
Sopronol, use of, against dermatophytes, 995 1267.
Spergon, use of, against *Alternaria tenuis* on the dog, 472; fungi pathogenic to man, 2177; *Microsporum audouini* and *M. canis*, 1520.
Sphacelotheca sorghi in relation to allergic diseases, 1331.
Sphaeropsidales in the air in U.S.A., 1601.
Spirochaeta herrejoni causing pinta of man in Venezuela, fungi associated with, 344.
Spondylocladium, in relation to allergy, 480, 885, 886, 1332; technique for preparing extracts of, 1338.
Sporendonema epizoum on man in Argentina, 2309; Germany, 2040; effect of l-cystein and thioglycollic acid on, 2318; *Torula morrhuae* synonym of, 1123.
— *sebi*, allergic response to, 655.
Sporobolomyces salmonicolor can infect the mouse, 2488.
— — on man in Austria, affecting the feet, 2488.
Sporormia articulata on man in Brazil, 428.
Sporotrichin, use of, in diagnosis, 639.
Sporotrichosis of animals, 1050.
— of man, 1810, 2212; in Brazil, 408; Costa Rica, 409; Pacific Islands, 225; the Philippines, 840; U.S.A., 107, 151; affecting the face, 409; allergic origin of, 1102; control, 99; review of, 408, 2032. See also *Sporotrichum schencki*, &c.
— of the mouse in U.S.A., 49.
Sporotrichum in the air in U.S.A., 681, 1851; in relation to the Provence reed disease in France, 684.
— on the cow in Canada, 211.
— on the horse in U.S.A., 185.
— on man, 2038; in Brazil, 1240; Germany, 2041; S. Africa, 2031; Uruguay, 1544, 1545; U.S.A., 618, 838; affecting the breast, 2041; the oral cavity, 229; allergic response to, 479, 655, 884; carbohydrate reactions of, 2031; control, 2055; complement fixation tests with, 838; effect of hexylresorcinol on, 1292; fungus resembling, on man in Brazil, 641; method of preparing antigen of, 1279.

[*Sporotrichum*] *asteroides*, reaction to, 2036; serology of, 1279.
— *beurmanni*, see *S. schencki*.
— *biparasiticum* can infect the guinea-pig, 271.
— *epigaeum*, effect of para-aminobenzoic acid on, 1517; of penicillin on, 1784; streptomycin on, 1784; tyrothricin on, 1784.
— *fonsecai* on man in Argentina, associated with corneal ulcer, 167.
— *gougeroti* renamed *Oospora gougeroti*, 1547.
— *schencki* can infect the guinea-pig, 1547; mouse, 848, 1280, 1547, 2212.
— — in chick embryos, 2139.
— — on animals, (?) transmission of, to man, 2374.
— — on the guinea-pig, 2036.
— — on the horse, 1815; in Colombia, 1272.
— — on man, 20, 1555; in America, 1551; Argentina, 643, 1047, 2028; Brazil, 2, 637, 638, 1057, 1275; Canada, 2212; Cuba, 642; England, 20; Finland, 2029; France, 1042; Germany, 1547, 2030; Guatemala, 1277; India, 1489; Italy, 2032; Mexico, 843; Mozambique, 101, 1276; Peru, 1280; Scandinavia, 2227; S. Africa, 106, 1273, 1277; Spain, 202; Uruguay, 839, 1976; U.S.A., 1, 25, 47, 108, 142, 382, 410, 411, 639, 640, 841, 851, 1042, 1043, 1044, 1045, 1046, 1277, 1280, 1282, 1283, 1284, 1546, 1548, 1559, 1560, 1563, 1804, 1805, 1806, 1807, 1808, 2042; U.S. Army, 842, 1234, 2548; Venezuela, 2220; affecting the arm, 839, 1046, 1806, 2212, 2548; arm following a mosquito bite, 411; bone, 2030; cheek, 1044, 1805; eyelid, 1042, 1047; finger, 1563; foot, 392, 1808, 2032; hand, 1804, 1807, 2548; leg, 839, 1808, 2032; skin, 1234, 1489; thigh, 1805; viscera, 2029; associated with cerebromeningeal mycoses, 2039; pulmonary mycosis, 142; capsule of, 2139, 2140; control, 108, 410, 637, 640, 841, 842, 1044, 1045, 1046, 1278, 1284, 1548, 1559, 1805, 1806, 2030, 2032, 2055, 2547, 2548; culture of, 168, 1275, 1277, 1822, 2028, 2034, 2212; diagnosis of, 1278, 2030; effect of antibiotic XG on, 2026; antihistaminic compounds on, 1569; fungocin on, 2027; p-hydroxymethyl benzoate on, 2020; penicillin on, 2102; a product of *Bacillus subtilis* on, 829; pyrimidine on, 2034; rimocidin on, 2218; streptomycin on, 1285; endotoxin of, 2033, 2220, 2380; epidemiology of, 1054; factors affecting, 2439; fatty cytoplasmic inclusions in, 651; identification of, 1060; in relation to vitamin B_1 synthesis, 1568; isolation of, 644; from sputum, 851; life-cycle of, 2028; multiple budding in, 1277; radiate formation in, 650, 1807; review of, 852, 2368; serology of, 838, 1279, 1358, 1816; tissue changes in, 658, 1062; toxicity of propamidine to, 616; parachlorophenol-α-glycerol ether to, 1030; salicylic acid and related compounds to, 1256; sulphanilamide to, 1028; technique for examining in tissue, 1547, 2139, 2140; yeast phase of, 1700.
— — on the mouse, 2139; effect of gastric mucin on resistance to, 2050.
— — on the mule in Brazil, 413.
— — on the rat, allergy and immunity in, 2036.
— — on shoes, in U.S.A., 630.
— — on timber in mines in S. Africa, 1273.
— *tropicale* on man in India, 1048; in relation to vitamin B_1 synthesis, 1568.
Squirrel, grey (*Sciurus caroliniensis*), *Trichophyton mentagrophytes* on, 32.
[Squirrel], pine (*Tamiasciurus hudsonica*), *Haplosporangium* on, in U.S.A., 1895.
Stachybotrys alternans in hay toxic to the horse and man in U.S.S.R., 429.
— —, toxicity of, to rabbits, 1328.
Starch, production of, by *Candida albicans*, 905; *Cryptococcus neoformans*, 904, 905; *Geotrichum dermatitidis*, 905.
Stemphylium in the air in U.S.A., 681, 1851.
— *piriforme* in the air in U.S.A., 1602.
— *sarciniforme* in the air in Spain, 1847.
Sterosan, use of, against dermatophytosis, 1268.
Stilbamidine, use of, against *Blastomyces dermatitidis*, 2096, 2408; *Histoplasma capsulatum*, 746, 1691; *Nocardia*, 2096.
Stockholm tar in coco-nut oil, use of, against *Microsporum equinum*, 633.
Streptomyces on man in U.S.A., 1562, 2235; production of endomycin from, 2054; use of, against *Cryptococcus neoformans*, 1114, 1115; *Nocardia asteroides*, 1070; *Paracoccidioides brasiliensis*, 1129, 1133; utilization of carbon compounds by, 1094.
— *fradiae*, production of fradicin by, 1820; of neomycin C by, 1878.
— *griseus*, antagonism of, to *Cryptococcus neoformans*, 699; effect of fungocin on, 2027; production of actidione by, 908.
Streptomycetaceae, member of, on man in Panama causing mycetoma, 972.
Streptomycin, effect of, on *Actinomyces*, 1312; *A. bovis*, 2068, 2396; *A. israeli*, 1315, 1316, 1840, 2230; *Blastomyces dermatitidis*, 892, 1104, 1341; *Candida albicans*, 958; *Coccidioides immitis*, 1285; *Cryptococcus neoformans*, 1866; growth of fungi, 2378; *Histoplasma capsulatum*, 1285, 1903; *Nocardia asteroides*, 1318, 2060; *Phialophora verrucosa*, 1285; *Sporotrichum schencki*, 1285; *Trichophyton mentagrophytes*, 1285; predisposing to attack by *Candida albicans*, 2291, 2292, 2474; use of, against actinomycosis, 1574, 1835, 2071, 2080, 2384; actinomycosis in bovidae, 2396; dermatophytes, 1784; madura foot, 1931; *Nocardia asteroides*, 1582, 1595; *Paracoccidioides brasiliensis*, 1646; pneumonia, 2474; tuberculosis, 2123, 2426.
— sulphate, tolerance of pathogenic fungi to, 855.
Streptothricin, use of, against dermatophytes, 1796; *Blastomyces dermatitidis*, 892; *Coccidioides immitis* by, 713; fungi pathogenic to man, 425.
Streptothrix on the turkey in England, 2160.
— *madurae*, see *Nocardia madurae*.
Stysanus stemonitis in the air in U.S.A., 1849.
Sulfadital, use of, against *Actinomyces*, 1087.
Sulpha drugs, use of, against actinomycosis, 1296.
Sulphadiazine, effect of, on *Actinomyces*, 663, 1590; *Cryptococcus neoformans*, 159, 703, 2256; resistance of mice to *Nocardia asteroides*, 2060; use of, against *Actinomyces hominis*, 258, 261; *A. israeli*, 257, 857, 872, 1084, 1284, 2074; actinomycosis, 242, 862, 863, 1088, 1297, 1303; *Cryptococcus neoformans*, 1118, 2414; *Histoplasma capsulatum*, 314, 2277, 2278; *Nocardia asteroides*, 1070, 1076, 1318, 1595; *Paracoccidioides brasiliensis*, 915, 919, 1127, 1133, 1369, 1643, 1645.
Sulphaguanidine, sulphapyridine, and sulphathiazole, toxicity of, to *Trichophyton rubrum* and *T. mentagrophytes*, 34.

Sulphamerazine, use of, against *Actinomyces israeli*, 1081; *Blastomyces dermatitidis*, 1827; *Paracoccidioides brasiliensis*, 912, 919, 1643, 1645.
Sulphamide, use of, against *Paracoccidioides brasiliensis*, 302, 305, 1134, 1135.
— para-amino benzene-sulphonamide N.Y.Q., toxicity of, to dermatophytes, 1264.
Sulphanilamide, toxicity of, to *Candida albicans*, 623; dermatophytes, 1264; *Microsporum canis*, 623; pathogenic fungi, 1028; use of, against *Actinomyces bovis* [*A. israeli*] on man, 249, 257; *A. hominis* on man, 261; actinomycosis, 242; *Histoplasma capsulatum*, 313; otomycosis, 473; *Sporotrichum schencki*, 410.
Sulphapyridine, use of, against actinomycosis, 242, 260; *Cryptococcus neoformans*, 279; dermatophytes, 1264; mycetoma, 1197; *Phialophora pedrosoi*, 1138.
Sulphathiazole, effect of, on *Actinomyces bovis*, 857; toxicity of, to *Actinomyces*, 663; use of, against *Actinomyces israeli*, 1078; *A. muris-ratti*, 1842; blastomycosis, 275; *Candida* and *Cryptococcus*, 321; *C. neoformans*, 279, 1119; dermatophytes, 1264; *Geotrichum*, 321; *Histoplasma capsulatum*, 313; mycetoma, 527; *Paracoccidioides brasiliensis*, 919, 1133, 1643; sporotrichosis, 409; *Trichophyton granulosum*, 1773.
Sulphonamides, use of, against actinomycosis of man, 195, 433, 435, 871, 1298, 1304, 2240; *Actinomyces*, 1083, 1075; *A. bovis*, 248; *A. israeli*, 2073, 2079; *Blastomyces dermatitidis*, 183; *Cryptococcus*, 1367; *C. neoformans*, 1866; dermatophytoses, 1994, 2015, 2016; *Histoplasma capsulatum*, 942; infectious coryza in poultry, 2403; mycetoma, 466; mycotic infections, 1559; *Microsporum audouini*, 1798; *Nocardia asteroides*, 1076; *Paracoccidioides brasiliensis*, 917, 919; pathogenic fungi, 1052; *Phialophora pedrosoi*, 1138, 1827; pulmonary mycoses, 331; tinea barbae, 1779; *Trichophyton*, 1798.
Sulphone, use of, against actinomycosis, 1832.
Sulphur, effect of, on epidermophytosis, 218; *Microsporum equinum*, 834; mycoses of man, 557; seborrhoeic dermatitis, 558; *Trichophyton equinum*, 834; *T. interdigitale*, 626, 1786; *T. schoenleini*, 834.
— dioxide, use of, against dermatophytes, 834.
— foam cloths, use of, against *Microsporum canis*, 1001.
— metabolism of *Microsporum gypseum* on wool, 1794.
Sulphydryl, effect of, on *Candida albicans*, 2379.
Supronal, use of, against *Actinomyces israeli*, 2232.
Sweat as culture medium for fungi, 415.
Sycosis barbae in Argentina, 189; *Trichophyton album* causing, 178.
— simplex on man in Germany, 620.
Syncephalastrum racemosum, isolation of, from animal and human tumours, 1929.
Syringospora the valid name for *Candida*, 750.

Tamiasciurus hudsonica, see Squirrel, pine.
Tanagra, *Aspergillus fumigatus* on, in France, 690.
Tar, use of, against *Trichophyton mentagrophytes*, 1768.
TCAP, effect of, on *Trichophyton mentagrophytes*, 1007; use of, against ringworm of the scalp, 792, 995.
Technique for auxanograms of filamentous fungi, 2049; of yeasts, 1722; collecting fungi from skin, 1963, 2372; culture maintenance, 1964, 2048; culturing *Actinomyces israeli*, 2228; *Histoplasma capsulatum*, 1921, 2441; fungi on slides, 785, 2047, 2349; on sweat, 415; dermatophytes, 1762, 2532; diagnosing dermatophytosis, 1491, 2045, 2161, 2162, 2164, 2314, 2315, 2505, 2542; by fluorescent light, 583, 584, 2163; moniliasis, 2161, 2162; mycoses, 1282, 1556, 2193; by potassium hydroxide mount, 1946; by culture, 1288; *Paracoccidioides brasiliensis*, 1645, 2115; *Phialophora*, 1880; evaluation of alcohol-soluble compounds, 1790, 1791, 1792; fungicides, 1065, 1510, 2010, 2011, 2052, 2371, 2541; organo-copper compounds, 2195; polymyxins, 2312; experimental infection of human hair with *Microsporum audouini*, 1980; of mice with *Histoplasma capsulatum*, 1913, 1914, 1915, 1916; identification of pathogenic fungi, 417; on hair in hanging drop, 1219, 1567; of *Candida* spp., 1954; *C. albicans*, 1718, 1719, 1720, 2303; *Microsporum audouini*, 1771; and *M. canis*, 1763, 1978; *Oospora gougeroti*, 1547; *Sporotrichum schencki*, 1547; *Trichosporon beigelii*, 2364; irradiating spores with ultra-violet rays, 1492; isolation of dermatophytes, 847, 1494, 1497, 1498, 2168, 2333, 2532; from soil, 2544; of pathogenic fungi, 417; morphological study in culture of *Microsporum canis* and *M. langeroni*, 2349; in tissue of *Histoplasma capsulatum* and *Sporotrichum schencki*, 2139; of *Paracoccidioides brasiliensis*, 1877; mounting mould fungi, 850, 1064, 2046; photographing fluorescent hairs, 1988; physiological study of dermatophytes, 2174; protecting investigators against *Coccidioides immitis*, 727; serology, 885, 1338, 1570, 1637, 1823, 1912, 1939, 2289, 2431; staining pathogenic fungi, 415, 1063, 1566, 1824, 2491; in skin scrapings, 414, 1497, 1499, 2463, 2536; use of radioactive isotopes, 1572, 1573.
Tergitol-7, use of, in isolating *Candida* spp., 2462.
Terramycin, 2483; effect of, on *Candida*, 2304; *Nocardia*, 2068; production of, from *Streptomyces rimosus*, 2218; use of, against actinomycosis, 2235, 2384.
2, 3, 4, 6-tetrachlorophenol and 4, 2, 5-trichlorophenol, toxicity of, to *Epidermophyton floccosum* and *Trichophyton interdigitale*, 1026.
Tetracoccosporium in the air in U.S.A., 1337.
Thallium, use of, against microsporosis of man, 2180; tinea capitis, 1235; *Trichophyton acuminatum*, 391; *T. crateriforme*, 391.
— acetate, use of, against microsporosis, 2341; tinea capitis, 2009.
Thenylene, effect of, on *Trichophyton mentagrophytes*, 2204.
Theophorin, 2003, 2204, 2322.
Thiamine, 2114; effect of, on *Candida albicans*, 475, 2149; *Microsporum audouini*, 987; *Trichophyton discoides* and *T. ochraceum*, 1242; reversible effect of, on neopyrithiamine, 1981.
Thianthrol, use of, against microsporosis of man, 2329.
Thiazol, effect of, on *Nocardia asteroides*, *N. brasiliensis*, and *Phialophora pedrosoi*, 1827.
Thiocarbamyl hydrazine, toxicity of, to various fungi, 1111.
Thiocyanates, antifungal activity of, 2224.
Thioformol, use of, against trichophytosis, 1774.

Thioglycollate medium for culture of *Actinomyces israeli*, 1284.
Thioglycollic acid, effect of, on some fungi pathogenic to man, 2318.
Thiolutin, use of, against *Coccidioides immitis*, 2263a.
Thiosemicarbacide, 741, 2340; use of, against dermatophytes, 1796.
Thiourea, toxicity of, to *Coccidioides immitis*, 1110; *Cryptococcus neoformans*, 1110, 1111; use of, against dermatophytosis of the feet, 1019.
'Threshing disease' of man in Switzerland, *Alternaria* in relation to, 683.
Thymol, use of, against *Candida albicans*, 2455; actinomycosis, 253; fungus infections of the feet, 826; *Trichophyton rubrum*, 581; *T. schoenleini*, 360.
— iodide, use of, against athlete's foot, 406.
Tillandsia, mould fungi on, in U.S.A., 1844.
Timber, *Sporotrichum* on, in mines in S. Africa, 1279.
Tinea of the cat and dog, 2531.
— of man, 2531; in Algeria, 2005, 2332; Brazil, 2198; Canada, 2322; France, 2019; Madeira, 2336; Malaya, 2324; New Guinea, 564; (?) Portugal, 2335; Uruguay, 1976; U.S.A., 390, 1462, 1775; Venezuela, 2220; control, 390, 2324; associated with *Epidermophyton*, 97, 1775; *Microsporum audouini*, 2322; *M. canis*, 2220, 2335; *Trichophyton*, 1775; *T. epilans*, 2220; *T. flavum*, 2336; *T. mentagrophytes*, 2198, 2220; *T. rubrum*, 2005; *T. sabouraudi*, 2335, 2336; *T. schoenleini*, 2336; *T. tonsurans*, 2220; *T. violaceum*, 2335, 2336.
— axillaris of man in the British Army, 625; U.S.A. associated with *Trichophyton rubrum*, 2355.
— barbae on man in Australia, 2500; Uruguay, 1976; U.S.A., 1773, 2207, 2337, 2355; associated with *Trichophyton mentagrophytes*, 2337, 2355; *T. rubrum*, 2207, 2500.
— capitis, 1555, 1970; in Argentina, 121, 1503, 2311; Australia, 2500, 2505; Austria, 2504; Brazil, 385; Canada, 1218, 2356; Chile, 368; Egypt, 2342; France, 2001, 2167; France of African origin, 2352; Germany, 2340; Great Britain, 370, 1235, 1533, 1971, 1972, 1978, 1984, 2170, 2184; Israel, 981; Mexico, 660; New Zealand, 1233, 2325; N. Ireland, 1971; Persia, 2206; Poland, 2190; Portugal, 2009; Spain, 2499; Spanish Morocco, 600; Switzerland, 1985, 1986; Uruguay, 1976; U.S.A., 361, 363, 596, 614, 791, 792, 796, 797, 805, 806, 807, 809, 810, 985, 1001, 1002, 1003, 1229, 1230, 1244, 1245, 1258, 1259, 1466, 1467, 1468, 1469, 1470, 1471, 1472, 1473, 1502, 1504, 1509, 1516, 1520, 1531, 1532, 1541, 1747, 1749, 1751, 1752, 1755, 1756, 1758, 1759, 1760, 1763, 1783, 1979, 1989, 2181, 2183, 2185, 2188, 2219, 2326, 2337, 2343, 2344, 2345, 2346, 2355, 2502, 2507, 2530; associated with *Microsporum*, 361, 364, 368, 1245, 1749, 1970, 1976, 1978, 2164, 2167; *M. audouini*, 88, 361, 364, 385, 614, 791, 796, 805, 807, 809, 810, 985, 998, 1218, 1229, 1231, 1244, 1245, 1246, 1253, 1258, 1259, 1466, 1467, 1468, 1469, 1470, 1471, 1472, 1473, 1504, 1509, 1516, 1530, 1531, 1532, 1533, 1749, 1755, 1756, 1758, 1759, 1763, 1783, 1795, 1801, 1971, 1972, 1978, 1979, 1984, 1985, 1986, 1987, 1989, 2014, 2178, 2179, 2180, 2183, 2184, 2185, 2206, 2219, 2325, 2337, 2340, 2342, 2343, 2344, 2345, 2346, 2500, 2502, 2507, 2510, 2530; *Microsporum canis*, 596, 796, 797, 1001, 1002, 1003, 1218, 1244, 1466, 1468, 1473, 1509, 1516, 1520, 1747, 1749, 1758, 1759, 1760, 1763, 1795, 1972, 1976, 1978, 1979, 1988, 1989, 2014, 2167, 2179, 2181, 2183, 2184, 2185, 2190, 2219, 2311, 2325, 2337, 2355, 2499, 2500, 2502, 2504, 2505, 2510, 2530; *M. gypseum*, 1747, 1749, 1758, 1759, 1976, 1989, 2181, 2325, 2326; *Trichophyton*, 368, 981, 1749, 1970, 2342, 2352, 2502; *T. acuminatum*, 2167; *T. brumpti*, 2206; *T. crateriforme*, 361, 1002, 1467; *T. discoides*, 2179; *T. equinum*, 1972, 2179; *T. ferrugineum*, 2014, 2167; *T. flavum*, 2352; *T. granulosum*, 1509; *T. mentagrophytes*, 361, 594, 1003, 1749, 1760, 2179, 2184, 2206, 2325; *T. milochevitchi*, 2206; *T. ochraceum*, 2356; *T. pittalugai*, 2206; *T. quinckeanum*, 1972; *T. rubrum*, 1003, 1760; *T. sabouraudi*, 1760, 2167, 2352; *T. schoenleini*, 361, 600, 796, 1473, 1972, 2167, 2179, 2206, 2352, 2356; *T. sulphureum*, 796, 1467, 1752, 1972, 2181, 2184, (?) 2210, 2352; *T. tonsurans*, 660, 1749, 2167, 2356, 2502; *T. violaceum*, 1516, 1749, 2022, 2206, 2352, 2356; clinical course of, 2325; contracted from the cat, 2325; control, 121, 370, 796, 805, 806, 807, 809, 1001, 1002, 1003, 1017, 1230, 1231, 1253, 1258, 1259, 1501, 1502, 1503, 1504, 1509, 1516, 1530, 1531, 1532, 1533, 1783, 1984, 1985, 1986, 1987, 1989, 2001, 2009, 2014, 2022, 2023, 2179, 2183, 2184, 2185, 2188, 2219, 2325, 2326, 2340, 2343, 2344, 2345, 2346, 2355, 2507; coexistent with alopecia areata, 1751; epidemiology of, 363, 1989, 2184; etiology of, in U.S.A., 361; spontaneous cure of, 2014; in puberty, 998; technique for diagnosing, 2164; photographing, 1988.
[Tinea] circinata, see Tinea corporis.
— corporis of man in Canada, 1218; India, 378; Israel, 2532; U.S.A., 1021, 1516, 2219, 2326, 2337, 2355, 2514, 2530; U.S. Army, 629, 1234; U.S. Navy, 358; associated with *Candida albicans*, 2219; *Microsporum canis*, 2219, 2325, 2530; *M. gypseum*, 2325, 2326; *Trichophyton mentagrophytes*, 2219, 2325; *T. rubrum*, 2219, 2325; contracted from cats, 2325; control, 1516, 1530, 2219, 2326, 2355, 2530; fungi in relation to, 1218.
— cruris of man in the British Army, 625; England, 217; India, 375; the Middle East, 555; Palestine, 981; U.S.A., 1021, 1748, 2355, 2530; U.S. Army, 629; the U.S. Navy, 358; associated with *Candida albicans*, 2530; *Epidermophyton floccosum*, 82, 2355, 2530; *Trichophyton mentagrophytes*, 2530; *T. rubrum*, 981; control, 217, 621, 625, 629, 1021; 'dhobie itch' not a synonym of, 401.
— imbricata of man, see *Trichophyton concentricum*.
— interdigitale on man in England, 217; India, 375.
— nigra of man in Brazil, 1041; Panama Canal Zone, 1068; Puerto Rico, 1803; U.S.A., 1802; associated with *Cladosporium wernecki*, 1041, 1068.
— pedis of man in Australia, 2500; the British Army, 566, 625; Canada, 1218; Chile, 2357; Denmark, 2526, 2527; France, 2008; Germany, 2517; Great Britain, 2012, 2170; Holland, 2338; the Middle East, 555; Philippines, 2494; Switzerland, 1973, 1974, 1975, 1976, 2194; U.S.A., 39, 59, 377, 379, 392, 398, 403, 404, 406, 556, 617, 1010, 2022, 2175, 2208, 2219, 2337, 2355, 2520a, 2530; U.S. Army, 570, 1748, 1772, 2496; U.S. Navy, 376, 395; associated with *Candida albicans*, 2219, 2530; *C. guilliermondi* and *C. parapsilosis*, 1974; *Epi-*

dermophyton, 1054; *E. floccosum*, 1974, 1976, 2012, 2208, 2337, 2355, 2500, 2530; *Microsporum canis*, 2525; *M. gypseum*, 2525; *Scopulariopsis brevicaulis*, 1974, 1975; *Trichophyton*, 1054; *T. interdigitale*, 82, 355, 1973, 1974, 1975, 2194, 2208, 2517, 2525; *T. mentagrophytes*, 1516, 1976, 2012, 2219, 2337, 2355, 2357, 2494, 2500, 2520a, 2525, 2530; *T. rubrum*, 1218, 1516, 1973, 1974, 1976, 2012, 2219, 2337, 2355, 2357, 2494, 2500, 2520a, 2530; *T. sabouraudi*, 2357; various fungi, 403; coexistent with onychomycosis, 1974, 1975; control, 39, 117, 377, 379, 392, 395, 398, 404, 406, 556, 617, 625, 1503, 1535, 1536, 1541, 1994, 2008, 2012, 2175, 2208, 2219, 2355, 2520a, 2525, 2526, 2527, 2530; culture from, 2357; problem of, 1734; progress in therapy of, 1017.

[Tinea] sycosis of man in Czechoslovakia, 2003; U.S.A., 2355.

— tonsurans, see Tinea capitis.

— unguium of man in Great Britain, 2170; Uruguay, 1976; U.S. Army, 1748.

— versicolor of man, 1555; in U.S.A., 2022, 2219, 2255, 2366, 2508; the U.S. Navy, 358; associated with *Malassezia furfur*, 35, 114, 2219, 2355, 2508; *Pityrosporum orbiculare*, 2366; control, 2219, 2255.

Tomatine, toxicity of, to *Candida albicans*, 1212.

Torula in the air in Sweden, 1604.

— on man, 228; in Finland, 2154; U.S.A., 879; associated with otomycosis, 879.

— *bergeri* on man in Canada, 1653.

— *cremoris* identical with *Candida pseudotropicalis*, 964.

— *histolytica*, see *Cryptococcus neoformans*.

— *jeanselmei* renamed *Phialophora jeanselmei*. 530.

— *morrhuae* synonym of *Sporendonema epizoum*, 1123.

Torulopsidoideae, biology of, 1052.

Torulopsis, *Candida pelliculosa* approximates to, 750; nitrogen assimilation tests not reliable for classification of, 755.

— on man associated with *Candida tropicalis*, in Algeria, 1946; onychia in Argentina, 11; isolation of, from sputum in Argentina, 1203.

—, the name, 1624.

— *albida* renamed *T. neoformans* var. *albida* (q.v.), 488.

— *candida*, growth factors for, 751.

— *glycosi* on man in Germany, 162.

— *laurentii*, growth factors for, 751.

— *minor* on man in Argentina, associated with onychia, 11; Germany, 1625, 2321; use of, for evaluating fungistatic compounds, 1780.

— *neoformans*, see *Cryptococcus neoformans*.

— — var. *albida*, see *Cryptococcus neoformans*.

— *orbiculata* on man in Mexico, 1226.

— *pulcherrima*, antibodies against, in man, 322, 533.

— *sexta*, *Torula* N. 6 Will, 1916 named, 845.

— *utilis*, toxicity of endomycin to, 2054.

Torulosis of man, see *Cryptococcus neoformans*.

Torulospora alkoholi and its var. *azymatica* on man in Germany, 162.

Toxoplasmosis of man, similarities between *Histoplasma capsulatum* and, 2144.

Trachoma of man, moulds in relation to, in Spain, 1828.

Trichoderma on man in U.S.A., 1562.

Trichomycosis due to *Actinomyces tenuis*, 130.

Trichophytia profunda of man in Germany, 620, 1779, 2015, 2016, 2328; control, 2015, 2016; sensitivity to, 1966.

[Trichophytia] superficialis of man in Germany, 2328.

Trichophytids in relation to *Trichophyton mentagrophytes*, 355.

Trichophytin, 1490; allergic response to, 90, 173, 2003, 2331, 2354; chemistry of, 2540; from *Trichophyton interdigitale*, 131, 2017; *T. mentagrophytes*, 131, 2003, 2202, 2354; *T. quinckeanum*, 131, 2017; in relation to fungicides, 2313; *T. faviforme*, 2515; use of, for dermatophytoses, 622, 1505; thromboangiitis obliterans, 1036; tinea sycosis, 1779, 2003; valueless in diagnosis, 144.

Trichophyton on the guinea-pig, action of Castellani's solution on, 1777.

— on man, 1810, 1813, 1970, 2173; in Argentina, 11, 198; Austria, 201; Brazil, 1240; Chile, 368; Czechoslovakia, 1515; Egypt, 2342; France, 1249; Germany, 1450, 2320, 2328; Great Britain, 369, 971, 1235; Holland, 1227; New Zealand, 2325; N. Ireland, 1971; Samao, 2501; U.S.A., 405, 1270, 1749, 1775, 2315; U.S. Army, 1234; U.S. Navy, 565; affecting the beard, 1227; feet, 565, 1236, 2315; hands, 565; allergic response to, 1259; associated with dermatophytosis, 405, 1234, 1252, 1253, 1270, 2501; favus, 1261; intertriginous mycoses, 198; kerion celsi, 368; otitis, 378; onychia, 11, 1249; tinea tonsurans, 368, 2325, 2342, 2502; control, 369, 405, 1235, 1253, 2328; culture of, on hair, 1764; diagnosis of, 1236, 2505; effect of hexylresorcinol on, 1292; vitamin K on growth of, 1999; epidemiology of, 1054; extract of, for use against pityriasis rosea, 613; relation of, to dermatomycoses, 977; technique for the identification and isolation of, 417; tissue changes induced by, 1062; use of, in testing fungicides, 1020.

— on shoes in U.S.A., 630.

—, taxonomy of, 1968.

— *acuminatum*, see *T. sabouraudi*.

— *album* can infect rabbits, 1270.

— — on cattle in Brazil, 1039; France, 1022; U.S.A., 632.

— — on man in France, 1022; Switzerland, 178, 1967; Turkey, 1743; U.S.A., 1270; effect of growth substances on, 350; trimeton maleate on, 1819; toxicity of allylsenerol to, 1023; lactoflavin to, 853; paraquinone to, 853; sodium propionate to, 1264; sulphamides to, 1264.

— —, *T. discoides* and *T. ochraceum* synonyms of, 1242.

— *asteroides*, see *T. mentagrophytes*.

— *brumpti* on man in France, 1249; Persia, 2206.

— *camerounense* can infect the guinea-pig and rabbit, 979.

— — on man in U.S.A., 979.

— *caninum* on the dog, 2531.

— *cerebriforme* on man in France, 1247; Palestine, 981; culture medium for, 1216; serology of, 577; synonym of *T. tonsurans*, 799.

— *concentricum* on man in Guatemala, 802; India, 5; Malaya, 563; New Guinea, 564; Panama, 1061; control, 2322; review of, 1969; synonym of, 5, 802; vitamin requirements of, 2538.

— *crateriforme*, see *T. tonsurans*.

— *discoides* can infect rabbits, 1270.

— — on the calf in Algeria, 359.

— — on man in Great Britain, 575, 576, 1071, 2226; N. Ireland, 1971, 2179; Uruguay, 1242, 1976; U.S.A., 1270; control, 2179; synonym

of *T. album*, 1242; vitamin-deficient strains of, 1242.
[*Trichophyton*] *endothrix* on man in England, 1266.
— *epilans* on man in (?) Hungary, 2316; Venezuela, 2220; synonym of *T. tonsurans*, 799; taxonomy of, 1968.
— *equinum* on the horse in Germany, 834; U.S.A., 632.
— — on man in Germany, 834; Great Britain, 1971, 1972; N. Ireland, 1971, 2179; Uruguay, 1976; control, 1972, 2179; conversion of tryptophane to nicotinic acid by, 1767; toxicity of sodium propionate and sulphamides to, 1264.
— *exsiccatum* on man in Denmark, 1740.
— *farinulentum* a variant of *T. mentagrophytes*, 1009.
— *faviforme* on cattle in U.S.A., (?) 2514, 2515.
— — on the horse, 2515.
— — on man in Australia, 2500; Denmark, 1740; U.S.A., 1474, 2376, 2514, 2515; contracted from animals, 2374, 2514, 2515; control, 2514, 2515.
— — *album* on cattle in Brazil, 1039.
— *ferrugineum* on man in Angola, 1744; the Belgian Congo, 1487, 1996, 1998; France, 2014, 2167; effect of some antihistaminic compounds on, 1569; review of, 1969; toxicity of plumbagol to, 856.
— — var. *album* on man in Belgian Congo, 1996, 1998.
— *flavum* can infect the guinea-pig, 12.
— — on the horse in Argentina, 12.
— — on man in Denmark, 1740; France, 2352; Germany, 2329; Hungary, 2316; Madeira, 2336; Switzerland, 1967, 1973; Uruguay, 1976; control, 2329; effect of antihistaminic compounds on, 1569; (?) identical with *T. tonsurans*, 367.
— *fumatum* on man in Algeria, 800, 982; Madagascar, 800.
— *gallinae* on animals, (?) transmission of, to man, 2374.
— — on the dog in U.S.A., 148.
— — on the mouse in New South Wales, 835.
— — on poultry, 2365; in the French Cameroons, 800; Great Britain, 1058; New South Wales, 835; U.S.A., 430.
— —, physiology and synonymy of, 2537; toxicity of sodium propionate to, 1264; sulphamides to, 1264; variation in, 787.
— *glabrum* on man in N. Africa, 2498; vitamin requirements of, 2538. See also *T. violaceum*.
— *gourvili* on man in the Belgian Congo, 1487.
— *granulosum* a variant of *T. mentagrophytes*, 1009.
— — on man in Belgium, 1454; Portugal, 1735; Switzerland, 1973; U.S.A., 1509, 1773; effect of undecylenic acid on, 2216; trichophytin production by, 2540.
— *griseiforme* on man in Austria, 2524.
— *griseum* on man in U.S.A., 2337.
— *gypseum*, see *T. mentagrophytes*.
— — *granulosum*, see *T. mentagrophytes*.
— *interdigitale*, antagonism of *Alcaligenes* to, 1029; antibiotic activity of, 1785.
— — on leather, 631.
— — on man in Australia, 2358; Argentina, 11; Austria, 201; Belgian Congo, 1996; Brazil, 1965; Czechoslovakia, 2166; Denmark, 1740; Finland, 1455, 1529; Germany, 2321, 2328, 2516, 2517; Great Britain, 1971; Malaya, 1745; N. Ireland, 1971; Palestine, 981, 1011; S. Africa, 626; Switzerland, 1973, 1974, 1975, 2194; the Tropics, 82; U.S.A., 4, 403, 803, 816, 1021, 1031, 2208; U.S. Army, 811; U.S.S.R., 789; affecting the foot, 82, 117, 403, 803, 811, 1529, 1973, 1974, 1975, 2194, 2208, 2516, 2517, 2525; hand, 11, 403, 803, 981, 1021, 2166, 2328, 2358, 2516; inguinal region, 981; combined infections of *Candida guilliermondi* and, 1974; *Scopulariopsis brevicaulis* and, 1975; control, 117, 389, 626, 803, 816, 1021, 1031, 1505, 1529, 1965, 2208, 2321, 2358, 2516, 2517, 2525; culture of, 2208; effect of antibiotics on, 1784; 1-cystein hydrochloride on, 2318; endomycin on, 2054; ethyl p-oxybenzoate on, 1786; phenanthroline on, 2217; phenyl mercuric acetate on, 1786; p-oxybenzoate on, 1786; sodium propionate derivatives on, 2377; sulphonamides on, 1798; sulphur on, 1786; thioglycollic acid on, 2318; undecylenic acid on, 1786; trichophytin from, 131, 2017, 2540; staining of, 414; temperature relations of, 111.
[*Trichophyton interdigitale*] on shoe and stocking material, 2194.
— —, production of trichophytin by, 131, 2017, 2540; toxicity of fungicides to, 1026; organocopper to, 2195; salicylic acid and related compounds to, 1256, 2195; undecylenic acid to, 619; (?) variant of *T. mentagrophytes* resembling, 606, 1745.
— Kauffman-Wolf, see *T. interdigitale*.
— *lacticolor* on man in Germany, 2321; (?) Hungary, 2316.
— — a variant of *T. mentagrophytes*, 1009.
— *langeroni* on the goat and man in Algeria, 119.
— —, toxicity of sodium propionate and sulphamides to, 1264.
— *megnini* on man, nutritional requirements and taxonomy of, 2537; (?) toxicity of allylsenerol to, 1023.
— *mentagrophytes*, antagonism of Actinomycetes to, 1066, 1525; *Aspergillus clavatus* to, 1034.
— — in soil in U.S.A., 2221.
— — on animals, effect of fungocin on, 2027; (?) transmission of, to man, 2374.
— — on cattle in France, 1022.
— — on the dog, 2531.
— — on the grey squirrel, 20.
— — on the guinea-pig, 160, 601, 602, 801, 1005, 1023, 1243; allergic response to, 32; effect of cortisone on, 2205; immunization against, 602.
— — on leather, 631.
— — on man, 117, 2541; in Algeria, 800, 1221; Argentina, 1760; Australia, 2500; Brazil, 592, 1965, 2198; Canada, 348, 1218; Chile, 2357; Czechoslovakia, 1515, 2202; Denmark, 1740, 2197; the Far East, 798; France, 1022; Germany, 1452, 1768, 2321, 2330; Great Britain, 575, 576, 815, 1237, 1542, 1971, 2012, 2184, 2226; Guam, 1006; Holland, 1448, 1797; Hungary, 2316; India, 1009, 1237, 1489; Israel, 2532; Italy, 2203; Malaya, 1745; New Zealand, 1233, 1460, 2325; N. Ireland, 1971, 2179; Palestine, 981; Persia, 2206; Philippines, 2494; Poland, 1449; Puerto Rico, 367; Spain, 2169, 2334, 2499; Switzerland, 1973; Uruguay, 1976; U.S.A., 16, 120, 355, 356, 382, 397, 403, 574, 580, 597, 599, 618, 790, 806, 821, 846, 1003, 1004, 1010, 1012, 1021, 1032, 1237, 1270, 1461, 1465, 1474, 1516, 1538, 1563, 1749, 1792, 2176, 2181, 2199, 2219, 2337, 2355, 2376, 2518, 2520a, 2530; U.S. Army, 570, 1013, 1748; U.S.S.R., 1219; Venezuela, 2220; affecting the beard, 1218, 1976; eye, 1223; foot,

382, 403, 574, 981, 1012, 1013, 1021, 1032, 1218, 1460, 1515, 1542, 1748, 1797, 1976, 2022, 2199, 2337, 2355, 2357, 2494, 2500, 2520a, 2525, 2530; hair, 1219, 1474, 2220, 2337, 2355; hand, 403, 574, 1009, 1241, 1976; inguinal region, 981, 1748; nails, 1448, 1449, 1748, 2376; scalp, 597, 1006, 1009, 1474, 1749, 1760, 2177, 2179, 2181, 2184, 2206, 2376, 2499; skin, 1009, 1237, 1461, 1474, 1489, 1563, 1745, 1976, 2219, 2325, 2376, 2530; associated with dermatophytosis, 355, 403, 570, 576, 599, 1452, 1474, 1489; 1538, 1542; tinea pedis, 798, 1010, 1218, 1748, 1784; verrucous dermatitidis, 2199; combined infection of, with *Microsporum canis* and *Trichophyton schoenleini*, 2499; *T. violaceum*, 1461; other fungi, 120; contracted from the mouse, 2518; control, 117, 397, 608, 618, 806, 815, 1003, 1004, 1006, 1021, 1032, 1260, 1262, 1474, 1505, 1515, 1516, 1522, 1538, 1745, 1769, 1797, 2179, 2184, 2197, 2203, 2219, 2321, 2322, 2330, 2355, 2518, 2520a, 2525, 2530, 2535; culture of, 597, 1065, 1216, 1498, 1766, 1964, 2317, 2353, 2532, 2533; differentiation of, from *T. rubrum*, 16, 1491; effect of aerosporin on, 1539; antibiotic XG on, 2026; antihistaminic compounds on, 1569, 2204; asterol dihydrochloride on, 2186; crystalline fradicin on, 1820; 1-cystein hydrochloride on, 2318; essential oils on, 1523; fatty acids from human hair on, 1521; fungicides on, 817; fungistatic agents on, 389; fungocin on, 2027; gliotoxin on, 425; helixin on, 2457; histamine dichloride on, 2520; myosubtilin on, 2025; nitrogen on, 2004; para-aminobenzoic acid on, 1517; para-bromo phenoxypropylthiocyanate on, 2224; penicillin on, 1782; penicillin G on, 1540; *Penicillium* sp. on, 2353; penotrane on, 2053; p-hydroxymethyl benzoate on, 2020; plant extracts on, 2323; polymyxins on, 1539, 2312; 3-pyridinethiol zinc derivative on, 1789; raphanin on, 1793; spergon on, 2177; streptomycin on, 1285, 1782; streptothricin on, 425; sulphonamides on, 34, 1798; thioglycollic acid on, 2318; trimeton maleate on, 1819; tyrothricin on, 1784; various compounds on, 1524; vitamin K on, 2024, 2519; vitamins on, 1495; fatty cytoplasmic inclusion in, 651; inhibition of, by a product of *Aspergillus flavus*, 830; in industry, 356; isolation of, 578, 786, 798, 1497; irradiating spores of, 1492; macroconidia of, 1005; morphology of, 345; nutrition and physiology of, 580, 2379, 2537; pathogenicity of, 1451; resistance of, induced, to pelargonic acid, 1506; serology of, 577, 838; sporulation of, in culture, 348; spread of, by nurses, 1768; taxonomy of, 1968; technique for assaying extracellular antigenic fractions from, 1570; toxicity of acenaphthene to, 2196; allylsenerol to, 1023; antibiotics to, 649, 829; bacillomycin to, 1265; clavacin to, 612, 1033; diethylstilbestrol to, 827; dithiocarbamyl hydrazine to, 1111; eumycin to, 828; fatty acids to, 1007, 1008, 1027, 1257; gliotoxin to, 610, 611; halogenated phenolic ethers to, 1025; hormones to, 1015; hydroxyproline to, 823; monopyridine iodine para-nitrobenzoate to, 824; organocopper to, 2195; parachlorophenol-α-glycerol ether to, 1030; plumbagol to, 856; salicylic acid and related compounds to, 1256; sodium azide to, 426; sulphanilamide to, 1028; trichophytids in relation to, 355, 815; trichophytin from, 131, 2003, 2202, 2354; transmission of, from cattle, 1022; by soap, 599; use of, for evaluating fungicides, 1526, 1780, 2010, 2011; wrongly identified as *T. rosaceum*, 381; (?) variant of *T. interdigitale*, 1745; variation in, 1005, 1009, 1750, 1761, 2004; induced variation in, 606, 1492; viability of, 388; virulence of, 2310.

[*Trichophyton mentagrophytes*] on mice in Algeria, 192; U.S.A., 2518.

— — on the muskrat in U.S.A., 23, 214.

— — on natural substrata, 788.

— — on the rabbit, 2201.

— — on shoes and stockings, 2194, 2497.

— — var. *nodular* on man in Canada and U.S.A., 1750.

— *milochevitchi* on man in France, 1249; Persia, 2206; strain of *T. schoenleini* resembling, 2522.

— *niveum*, see *Trichophyton mentagrophytes*.

— *ochraceum* on cattle in Uruguay, 1242.

— — on man in Canada, 2356; Turkey, 1743; Uruguay, 1242; synonymy of, 1242; physiology of, 1242.

— *otae* on man in Canada, 348.

— *pedis*, see *Trichophyton mentagrophytes*.

— *persicolor* on man in Belgium, 1739; Denmark, 1739; Great Britain, 575, 1971; N. Ireland, 1971; Palestine, 981; production of endotrichophytin and exotrichophytin by, 2540; technique for testing fungicides against, 2541; variant of *T. mentagrophytes*, 1009; virulence, 2310.

— *pittalugai* on man in Persia, 2206.

— *plicatile* on man in Algeria, 800, 982; synonym of *T. tonsurans*, 799.

— *purpureum*, see *T. rubrum*.

— *quinckeanum* on animals, (?) transmission of, to man, 2374.

— — on the cat, 2531.

— — on man in Algeria, 1221; Austria, 201; Great Britain, 575, 1971, 1972; N. Ireland, 1971; affecting the scalp, 1972; control, 1505, 1972; culture of, 1766; taxonomy of, 1977; toxicity of aerosporin to, 1539; sodium propionate and sulphamides to, 1264; trichophytin from, 131.

— — on the mouse, 1977.

— *radians* on the cat, 2531.

— *radiolatum* on man in Denmark, 1740; pathogenicity of, 1224; variant of *T. mentagrophytes*, 1009.

— *regulare* on man in Algeria, 800, 982.

— *rodhaini* on man, 1486; in Belgian Congo, 1996.

— *rosaceum*, *Fusarium* mistaken for, 381.

— — on man, 117; in Denmark, 1740; Germany, 2321; Great Britain, 575; Hungary, 2316; Italy, 2203; control, 117, 2203, 2321, 2322; effect of para-aminobenzoic acid on growth of, 1517; sulphonamides on, 1798; reaction of, to fungistatic agents, 389; toxicity of allylsenerol to, 1023.

— *roseum* on man in Hungary, 2361; synonymy of, 1228.

— *rubrum*, antagonism of Actinomycetes to, 1066, 1525; *Alcaligenes* to, 1029; *Candida albicans* to, 2157.

— — can infect the guinea-pig, 983, 2005; rabbit, 383, 1015.

— — on animals, effect of fungocin on, 2027.

— — on man, 1490; in Australia, 2500; Algeria, 983, 1221, 2005; Argentina, 11, 1760, 2309; Belgian Congo, 1996; Brazil, 1965; (?) Cameroons, 984; Canada, 348, 1218; Chile, 52, 2357; China, 1237; Denmark, 1740; Europe, 1459; the Far East, 798; France, 984; Germany, 2328; Great Britain, 575, 1971,

2012, 2226; Holland, 1448; India, 1237, 1241, (?) 1967; Israel, 1482, 2532; Malaya, 1745; Mozambique, 193; New Zealand, 1460, 2325; N. Ireland, 1971; Palestine, 981; Philippines, 2494; Puerto Rico, 2499; Switzerland, 1973, 1974, 2006; Uruguay, 1976; U.S.A., 16, 120, 356, 397, 403, 476, 574, 581, 618, 688, 803. 816, 821, 997, 1003, 1004, 1010, 1012, 1021, 1031, 1237, 1239, 1263, 1465, 1474, 1479, 1516, 1563, 1606, 1792, 1960, 2002, 2176, 2207, 2208, 2219, 2355, 2337, 2360, 2376, 2520a, 2530; U.S. Army, 570, 1013, 1748; U.S.S.R., 789; Venezuela, 2220; Yugoslavia, 1459; affecting the arms, 581, 2005; beard, 1976, 2006, 2207, 2500; body, 1218; foot, 382, 476, 493, 574, 581, 798, 803, 1010, 1012, 1013, 1218, 1460, 1516, 1748, 1973, 1974, 1975, 1976, 2002, 2208, 2219, 2337, 2355, 2357, 2360, 2494, 2500, 2520a, 2530; hand, 403, 476, 574, 581, 803, 1748, 1976, 2002, 2360; inguinal region, 1748; nails, 11, 574, 688, 1218, 1241, 1263, 1448, 1606, 1748, 2309, 2360, 2376; scalp, 997, 1474, 1760, 2177, 2376; skin, 397, 983, 1221, 1237, 1474, 1479, 1562, 1745, 1976, 2005, 2022, 2219, 2325, 2376; associated with dermatophytosis, 397, 403, 570, 576, 1459, 1474; *Dermatophagoides scheremetewskyi*, 2360; eczema marginata, 193; nevoid anomaly, 1479; combined infection of *Candida parapsilosis* and, 1974; *Epidermophyton floccosum* and, 1974, 2002; *Scopulariopsis brevicaulis* and, 1974; various fungi and, 120; control, 581, 618, 803, 816, 983, 997, 1003, 1004, 1021, 1031, 1239, 1262, 1263, 1474, 1479, 1505, 1516, 1606, 1960, 1965, 2208, 2219, 2322, 2328, 2355, 2520a, 2530; culture of, 1498, 1606, 1782, 2176, 2207, 2208, 2357, 2532, 2533; differentiation of, from *T. mentagrophytes*, 16, 1491; effect of aerosporin on, 1539; antihistaminic compounds on, 1569; *Aspergillus flavus* antibiotic on, 830; asterol dihydrochloride on, 2186; cod liver oil and fatty acids on, 1782; l-cystein hydrochloride on, 2318; endomycin on, 2054; fungicides on, 389, 817; fungocin on, 2027; parabromo phenoxypropyl thiocyanate on, 2224; penotrane on, 2053; polymyxins on, 2312; spergon on, 2177; sulphonamide drugs on, 34; thioglycollic acid on, 2318; trimeton maleate on, 1819; inhibition of, by antibiotics, 649, 829; in relation to industry, 356; isolation of, 499, 786, 798, 1497; physiology of, 2379, 2537; pathogenicity of, 1459; serology of, 33, 577, 1570; sporulation of, in culture, 1225; staining of, 414, 1499; taxonomy of, 1968; toxicity of *Aspergillus clavatus* culture filtrates to, 1034; clavacin to, 1033; diethylstilbestrol to, 827; dithiocarbamyl hydrazine to, 1111; fatty acids to, 1027; hormones to, 1015; parachlorophenol-α-glycerol ether to, 1030; salicylic acid and related compounds to, 1256; sulphanilamide to, 1028; undecylenic acid to, 619.

[*Trichophyton rubrum*] on the rabbit, immunization against, 1799.

— — on shoe leather in U.S.A., 2497.

— —, *T. purpureum* a synonym of, 1066; *T. roseum* a synonym of, 1228.

— *sabouraudi* on the calf in France, 407.

— — on man in Algeria, 800, 982, 1221; Argentina, 1760; Chile, 2357; England, 575; France, 2167; France of African origin, 2352; Germany, 1452; Madagascar, 800; Madeira, 2336; Mexico, 391; Palestine, 981; (?) Portugal, 595, 2335; Spain, 2169, 2334, 2499; Uruguay, 1976; affecting the feet, 2357; scalp, 2499; control, 1505; culture of, 2353, 2357; effect of cod liver oil and fatty acids on, 1782; penicillin on, 2353; synonym of *T. tonsurans*, (?) 367 799; taxonomy of, 1968; vitamin requirements of, 2538.

[*Trichophyton sabouraudi*] on shoes in U.S.A., 630.

— *schoenleini*, antagonism of, to *T. violaceum*, 1014; aerosporin to, 1539; *Aspergillus clavatus* to, 1034.

— — on animals, (?) transmission of, to man, 2374.

— — on the horse in Germany, 834.

— — on man, 1813; in Algeria, 118, 349, 359, 800, 982, 1221; Argentina, 374; Austria, 201; Belgian Congo, 373; Belgium, 2522; Brazil, 1240; Canada, 348, 2356; Canary Islands, 2521; Chile, 368; China, 52, 2209; France, 1736, 2167, 2352; Germany, 834, 2320, 2321, 2328; Great Britain, 575, 1016, 1235, 1971, 1972, 2184, 2226; Holland, 1227; Italy, 2203; Libya, 600; Madeira, 2336; Morocco, 600, 2499; N. Africa, 2498; N. Ireland, 1971, 2179; Palestine, 981; Persia, 2206; Portugal, 595; Spain, 1969, 2169, 2334, 2499; Switzerland, 1967, 1973; Tunisia, 600; U.S.A., 360, 361, 796, 1473, 1477, 1478, 1754; U.S. Army, 1234; Uruguay, 1976; U.S.S.R., 1219; affecting the eye, 2209; hair, 1219; scalp, 981, 1016, 1473, 1477, 1478, 1972, 1976, 2167, 2179, 2184, 2206, 2356, 2499, 2522; skin, 1221, 1234; combined infections of *T. mentagrophytes* and, 2499; control, 117, 360, 796, 827, 1111, 1235, 1261, 1477, 1505, 2321, 2328, 2521; culture of, 1498, 1736, 1740, 1762, 1782, 2209; effect of blood on, 1220; cod liver oil and fatty acids on, 1782; cream of tartar on, 2007; myosubtilin on, 2025; penicillin on, 1784; raphanin on, 1793; streptomycin on, 1784; tyrothricin on, 1784; vitamin K on, 2024; isolation of, 1497; morphology of, 345, 349; review of, 1969; sporulation of, 118; staining of, 414, 1499; strain of, resembling *T. milochevitchi*, 2522; tissue changes in, 1062; toxicity of diethylstilbestrol to, 827, 1256; dithiocarbamyl hydrazine to, 1111, parachlorophenol-α-glycerol ether to, 1030; propamidine to, 616; salicylic acid and related compounds to, 1256; some antiseptics to, 2529; *T. album* distinct from, 1242.

— — on shoe leather in U.S.A., 2497.

— *sinensis* on man in China, 52.

— *soudanense* on man in the Belgian Congo, 373, 1996, 1997; affecting the hair, 2542; combined infection of *T. ferrugineum* and, 1997; variations in, 787.

— *sulphureum* can infect the guinea-pig, 980.

— — on man in Australia, 2500; Finland, 980; France of African origin, 2352; Great Britain, 1511, 1971, 1972, 2184, 2226; N. Ireland, 1971; U.S.A., 796, 1248, 1467, 1476, 2181, (?) 2210, 2362, 2509; affecting the legs, 1476, 2362; scalp, 796, 1467, 1511, 1752, 1972, 2181, 2184, 2362, 2210; nails, 2210; control, 796, 1248, 1256, 1476, 1511, 1972, 2184, 2210, 2362; effect of rimocidin on, 2218; isolation of, 786; *Microsporum* in relation to, 2210; synonym of *T. tonsurans*, 799; taxonomy of, 1971; toxicity of propamidine to, 616; salicylic acid and related compounds to, 1256; vitamin requirements of, 2538.

— *tonsurans*, fungistatic effect of aerosporin on, 1539.

— — on calves in U.S.A., 1037.

— — on man in Algeria, 800, 982; Argentina, 1760; Belgium, 1453; Canada, 348, 2356;

France, 2167; Great Britain, 575, 576; India, 615; Madagascar, 800; Mexico, 391, 660, 799; Palestine, 981; Portugal, 595, (?) 2335; Puerto Rico, 367; Spain, 2169, 2334, 2499; U.S.A., 361, 583, 790, 1002, 1021, 1467, 1749, 2376, 2502, 2523; U.S.S.R., 1219; Venezuela, 2220; affecting the forehead, 1453; hair, 2220; nails, 2376; scalp, 361, 575, 660, 799, 1467, 2356, 2376, 2502, 2523; skin, 576, 2376; associated with *Microsporum canis*, 1453; control, 391, 608, 615, 660, 1002, 1021, 1505, 2359; culture of, 1453, 1498, 1766; diagnosis of, 583; effect of cod liver oil and fatty acids on, 1782; product of *Aspergillus flavus* on, 830; of *Bacillus subtilis* on, 829; p-hydroxymethyl benzoate on, 2020; vitamin K on, 1781; vitamins on growth of, 1495, 2538; synonym of, 799; taxonomy of, 1968; *T. sabouraudi* and *T. flavum* (?) identical with, 367.

[*Trichophyton*] *umbilicatum* on man in Algeria, 800, 982; Madagascar, 800; culture of, 1766.

— *violaceum*, antagonism of *Aspergillus clavatus* to, 1034; *Trichophyton schoenleini* to, 1014.

— — on man in Algeria, 249, 349, 800, 982, 1221; Belgian Congo, 1487, 1996; Canada, 348, 2356; China, 52, 1237; Denmark, 2197; France of African origin, 2352; the French Cameroons, 800; Great Britain, 1971; Greece, 200; India, 615, 1237, 1241; Israel, 1482; Italy, 2203; Madeira, 2336; N. Africa, 2498; N. Ireland, 1971; New Zealand, 1460; Palestine, 981; Persia, 2206; Portugal, 582, 595, 1488, 1735, (?) 2335; Spain, 1969, 2169, 2335, 2499; Turkey, 1743; Uruguay, 1976; U.S.A., 1021, 1461, 1516, 1749, 2176, 2211; U.S.S.R., 1219; affecting the feet, 1021, 1460; hair, 1219; hands, 2211; nails, 1241, 1461, 1482; scalp, 615, 981, 1488, 1516, 1976, 2206, 2211, 2356, 2499; skin, 1221, 1237, 1508, 2211; combined infection of, with *T. ferrugineum*, 1996; *T. mentagrophytes*, 1461; *T.* (?) *tonsurans*, 2499; control, 615, 1021, 1505, 1508, 1516, 2197, 2203, 2322, 2529; culture of, 1219, 1498, 1762, 1782, 2176, 2363; effect of cod liver oil and fatty acids on, 1782; penicillin on, 1784; rimocidin on, 2218; streptomycin on, 1784; tyrothricin on, 1784, 2001; trimeton maleate on, 1819; review of, 1969; staining of, 1499; toxicity of Congo red to, 853; lactoflavin to, 853; paraquinone to, 853; sodium propionate and sulphamides to, 1264; undecylenic acid to, 619; variant of *T. mentagrophytes* resembling, 606; vitamin requirements of, 2363, 2538.

Trichophytoses of animals in France, 2019.

Trichophytosis of man in Brazil, 2021; Denmark, 571, 2197; Germany, 1452, 1774; Hungary, 2359; (?) Portugal, 2335; U.S.A., 624; U.S. Navy, 585; allergic reactions in, 2084; control, 571, 624, 2197, 2359.

Trichosporon on cattle in U.S.A., 1040.

—, spelling of, 590.

— *beigelii* on man in Argentina, 836; Brazil, 590; Paraguay, 18; Uruguay, 1480, 1976; U.S.A., 2364; Venezuela, 2220; *Piedraia colombiana* p.p., *T. cerebriforme*, *T. granulosum*, *T. humahuaquensis*, *T. minor*, and *T. ovoides* synonyms of, 18.

— *cerebriforme*, see *T. beigelii*.

— *cutaneum* on man in Costa Rica, 837.

— *giganteum* on man in Malaya, 563.

— *granulosum*, see *T. beigelii*.

— *humahuaquensis*, see *T. beigelii*.

— *infestans* on man in Italy, 837.

[*Trichosporon*] *minor*, see *T. beigelii*.

— *ovoides*, see *T. beigelii*.

— *paraguayo*, see *Piedraia hortai*.

— *proteolyticum* on man in U.S.A., 213; identical with *Coccidioides immitis*, 931.

— *ribeiroi* on man in Argentina, 587.

— *venezuelensis*, see *Piedraia hortai*.

Trichothecium roseum, toxicity of, to rabbits, 1328.

Trichyl, use of, against *Candida albicans*, 2155.

Triethanolamine, toxicity of, to *Trichophyton mentagrophytes*, 817; use of, against *Microsporum audouini*, 1532.

Trimethyl cetyl ammonium pentachlorphenate, use of, against *Microsporum audouini*, 792, 804, 1258; *M. canis*, 792; ringworm of the scalp, 995; *Trichophyton mentagrophytes*, 1007.

— octadecyl ammonium pentachlorphenate, use of, against mycoses, 1541.

Trimeton maleate, effect of, on *Blastomyces dermatitidis*, 2098; pathogenic fungi, 1819.

2, 3, 5-triphenyltetrazolium chloride in culture media for dermatophytes, 2317.

Trisodium phosphate, effect of, on fungi causing pulmonary mycoses, 2215.

Tritirachium brumpti on man in Egypt, 1281; *Beauveria brumpti* a synonym of, 1281.

— *ipigeum* on man in Italy, 1281.

— *rubrum* on man in Italy, 1281.

— *shiotae* on man in Japan, 1281.

— *viannai* on man in Mozambique, 1281.

Tryptose, effect of, on sporulation of *Trichophyton rubrum*, 1225.

Tubercle bacillus concentration procedures, effect of, on fungi causing pulmonary mycoses, 2215.

Tuberculin sensitivity, 1882, 1900, 1917, 1923, 1924, 2279; in relation to pulmonary calcifications, 1384, 1385, 1402, 1403, 1409, 1417, 1418, 1420, 1900, 1924.

Tuberculosis of man, *Actinomyces israeli* erroneously diagnosed as, 1561; *Blastomyces dermatitidis* infection may be confused with, 1862; associated with *Candida* spp., in Norway, 1705; *Coccidioides immitis*, 1386, 1667, 2123; *Histoplasma capsulatum*, 1394; comparison between moniliasis (*Candida albicans*) and, 1945; differentiation of, from histoplasmosis, 1393; pulmonary calcification in relation to, 1924; similarity between *Coccidioides immitis*, *H. capsulatum*, and, 2127; tuberculin sensitivity in relation to, 1882.

— of the pigeon, associated with moniliasis in Uruguay, 1952.

Tumours of animals and man, fungi isolated from, 1929.

Turbidimetric method for anti-fungal testing, 1785.

Turkey, *Actinomyces* on the, in Great Britain, 2245.

—, *Aspergillus fumigatus* on the, in Eritrea, 689.

—, *Candida albicans* on the, in New South Wales, 1207.

Tyrothricin, toxicity of, to *Candida albicans*, 1943; *Paracoccidioides brasiliensis*, 1135; use of, against dermatophytes, 1508, 1784, 1796, 2001, 2023, 2341; *Trichophyton granulosum*, 1454.

Ultra-sonic waves, effect of, on *Candida albicans*, 2459.

Ultra-violet rays, effect of, on *Candida albicans*, 323; use of, in diagnosing *Microsporum*

infections, 994, 2505; tinea capitis, 2164; in photography, 1988.
Uncinula australiana in relation to allergic diseases of man, 1331.
Undecylenate, use of, against tinea pedis, 617.
— -undecylenic ointment, use of, against *Microsporum audouini*, 1509.
Undecylenates, use of, against tinea, 2324.
Undecylenic acid, constituent of decupryl, 2343; 'mycelin', 2203; effect of, on *Candida albicans*, *Histoplasma farciminosum*, *Pityrosporum ovale*, and *Trichophyton granulosum*, 2216; *Microsporum canis*, 2506; fungicidal effect of, 2013; toxicity of, to *Trichophyton*, 1027; *T. mentagrophytes*, 1007, 1008; to fungi, 619; use of, against *Candida albicans*, 963; dermatophytes on man, 617, 618, 1019, 1031, 1267, 1501, 1778, 2008, 2019, 2183, 2203; on animals, 2019; mycotic diseases of man, 2200; *Microsporum audouini*, 1258, 1471, 1532; *M. gypseum*, 1457; *Trichophyton interdigitale*, 1786; *T. mentagrophytes*, 1522; *T. sulphureum*, 1248; undecylenate powder, use of, against dermatophytosis of the feet, 1019.
— compounds, use of, against *Trichophyton sulphureum*, 1476.
Urea, use of, with sulphanilamide against *Candida albicans* and *Microsporum canis*, 623.
Usnic acid, toxicity of, to *Candida albicans* and *Trichophyton mentagrophytes*, 2535.
Usnimycin, toxicity of, to *Trichophyton mentagrophytes*, 2535.
Ustilagic acid, antagonism of, to *Candida albicans* and *Cryptococcus neoformans*, 2418.
Ustilagineous pneumonia in cattle in Bulgaria, 1830.
Ustilago cynodontis in relation to allergic diseases of man, 1331.
— *maydis* on maize causing pneumonia in cattle, 1830.

V 741, use of, against tinea capitis, 2340.
Vaccinia virus on the guinea-pig, effect of cortisone on, 2205.
Vasomotor rhinitis, moulds in relation to, 269.
Verrucose dermatitis, see Chromoblastomycosis.
Veterinary mycology, review of, 420.
Vioform, effect of, on *Candida albicans*, 2151; use of, against dermatophytosis of the feet, 1019.
Vitamin A, use of, against *Candida albicans*, 1437.
— B_1, synthesis of, by fungi, 1568.
— D_2, use of, against *Coccidioides immitis*, 1386.
— deficiencies in relation to pityriasis simplex faciei, 2350; of fungi pathogenic to man, 1821.
— K, effect of, on *Cryptococcus neoformans*, 1629; *Trichophyton mentagrophytes*, 2519; *T. tonsurans*, 1781.
Vitamins, use of, against pathogenic fungi, 1942, 1999, 2024.
Volutella in the air in Spain, 1847.
Vulture (*Gypagus papa*), *Aspergillus fumigatus* on the, in France, 690.

Water, *Actinomyces israeli* in, 2392.
Weasel (*Mustela frenata*), *Haplosporangium* on, in U.S.A., 1895.
Westinghouse purple X light, use of, in differentiating between *Microsporum audouini* and *M. canis*, 1250.
Whitfield's ointment, suggested modifications of, 2534; use of, against athlete's foot, 556; *Microsporum audouini*, 2509; *M. canis*, 2504; ringworm, 556, 1255; tinea capitis, 369, 1972.
Wood duck (*Aix sponsa*), *Aspergillus fumigatus* on the, 691.
Wood's lamp, use of, in diagnosis of *Microsporum audouini*, 793, 1235, 1238, 1250, 1466, 1469, 1512, 1770, 1783, 1795, 1984, 1986, 2178, 2508; *M. canis*, 1250, 1466, 1469, 1512, 1795, 2504, 2511; *M. gypseum*, 1512; *Pityrosporum ovale*, 1770; tinea capitis, 352, 583, 584, 587, 588, 594, 598, 603, 1003, 1501, 1753, 1756, 1763, 2184, 2332, 2346; *Trichophyton tonsurans*, 583.
Wool, *Microsporum gypseum* on, 1794, 1990.

Xanthoma tuberosum of man in U.S.A., 1308; *Actinomyces israeli* associated with, 1308.
Xerus getulus, *Candida blanci* on, in Algeria, 636.
X-rays, effect of, on fungi, 1290; on infection by *Histoplasma capsulatum*, 1907; intradermal reactions of fungi in relation to, 1882; use of, against *Actinomyces*, 2231, 2239; *A. israeli*, 1078, 2231, 2237; actinomycosis, 123, 443, 861, 868, 1069, 1300, 1591, 2233, 2240; *Blastomyces dermatitidis*, 1284, 1860, 2250; blastomycosis, 1616; *Candida albicans*, 1716; *Cryptococcus neoformans*, 1119; dermatophytosis, 808(?), 1965; *Geotrichum*, 1725; microsporosis, 2179, 2180; *Microsporum audouini*, 385, 587, 605, 989, 990, 993, 1231, 1232, 1245, 1466, 1470, 1501, 1502, 1504, 1512, 1533, 1755, 1756, 1757, 1771, 2179, 2509; *M. canis*, 587, 1512, 2187; *M. gypseum*, 1512; *Phialophora pedrosoi*, 708; *Nocardia asteroides*, 1582; parametritis actinomycotica, 1836; *Sporotrichum gougeroti*, 1274; *S. schencki*, 1805; tinea capitis, 369, 370, 796, 995, 1003, 1235, 1972, 1985, 1989, 2001, 2009, 2184, 2210, 2343; trichophytia barbae profunda, 1779; *Trichophyton interdigitale* and *T. rubrum*, 803; *T. schoenleini*, 1477; *T. tonsurans*, 2502; in the diagnosis of *Coccidioides immitis*, 921; of coccidioidin sensitivity, 2425; of *Histoplasma capsulatum*, 2438, 2440; of pulmonary mycoses, 2147.

Yatren, effect of, on *Cryptococcus neoformans*, 1866.
Yeast extract, effect of, on *Microsporum audouini*, 987, 1983; *M. canis*, 1983.
Yeast-like fungi, immersion of, in solid culture media, 1430.
— — on man in Australia, 1939, 1940; Britain, 2226, 2300; Finland, 2478; Indo-China, 2294; Italy, 1431; New Guinea, 1939; Spain, 2354; associated with dermatophytoses, 1357; relation of, to balanoposthitis in France, 549.
Yeasts in the air in Brazil, 1848; Paris, 1850; U.S.A., 681; nitrogen assimilation tests not reliable for classification of, 755.
— on man in Germany, 1450; in sputum, in U.S.A., 63; classification of, 226; historical survey of, 333; morphology of, 1209; of medical interest, monograph on, 1553.
— on plant material in U.S.A., 1844.

Zephiran, use of, against tinea (dhobie's itch), 400.
Zinc chloride, use of, against dermatophytes, 1004.
— oxide-talcum, use of, against *Trichophyton interdigitale* and *T. rubrum*, 803.

[Zinc] peroxide, use of, against *Actinomyces bovis* on man, 249.
— sulphate, use of, against *Blastomyces*, 1618.
Zincundecate powder, use of, against tinea pedis, 2208.
Zinc undecylenate, use of, against *Candida albicans*, 963; dermatophytes, 618, 818, 819, 1031, 1501, 1778; *Microsporum audouini*, 810, 1258, 1532; *M. canis*, 810; tinea capitis, 2183.
Zincundesal, use of, against *Microsporum canis*, 1992.
Zygopichia nitrophila on man in Germany, 163.

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5 Vol. Slip 5